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Eastern Mediterranean gas

A reality check

LSE Hellenic Observatory
22 October 2020

East Med Gas: a reality check

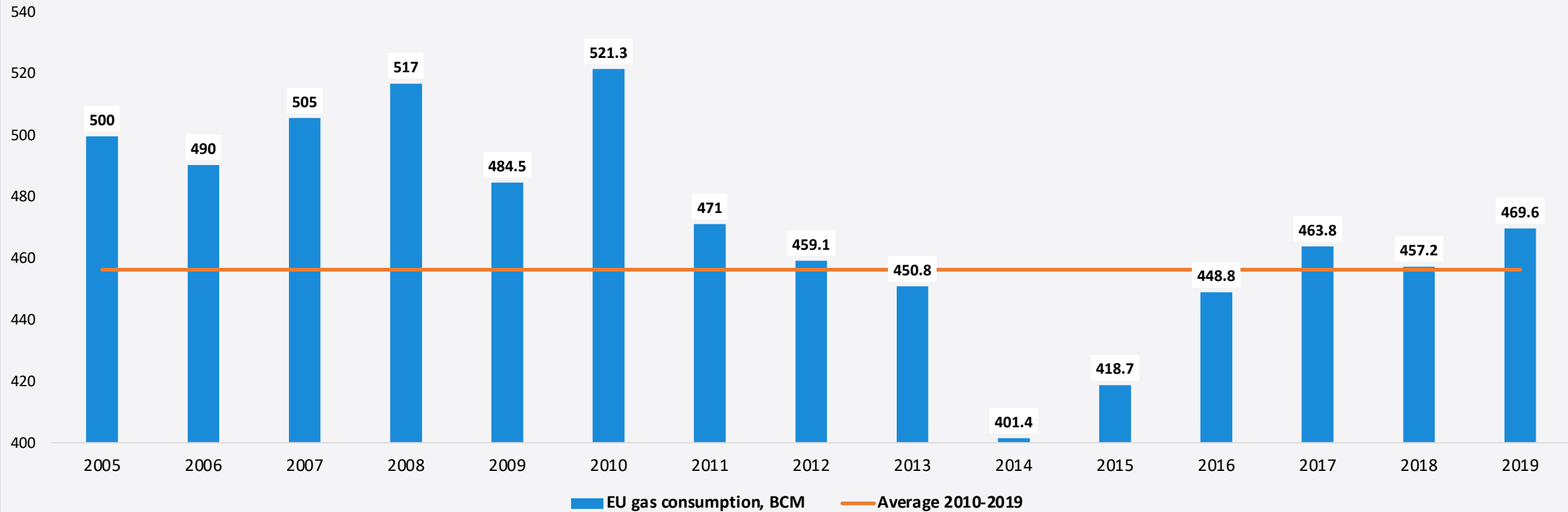
- **Global gas** market context: demand-supply-price trends
- **Supply context: how big** are the East Med gas finds?
- **At what price is East Med gas viable?** (Sapienta model)
- **Recommendations to policy-makers**

Global gas market context

EU gas demand is not growing

Source: BP Statistical Review of World Energy;
chart prepared by Sapienta Economics Ltd

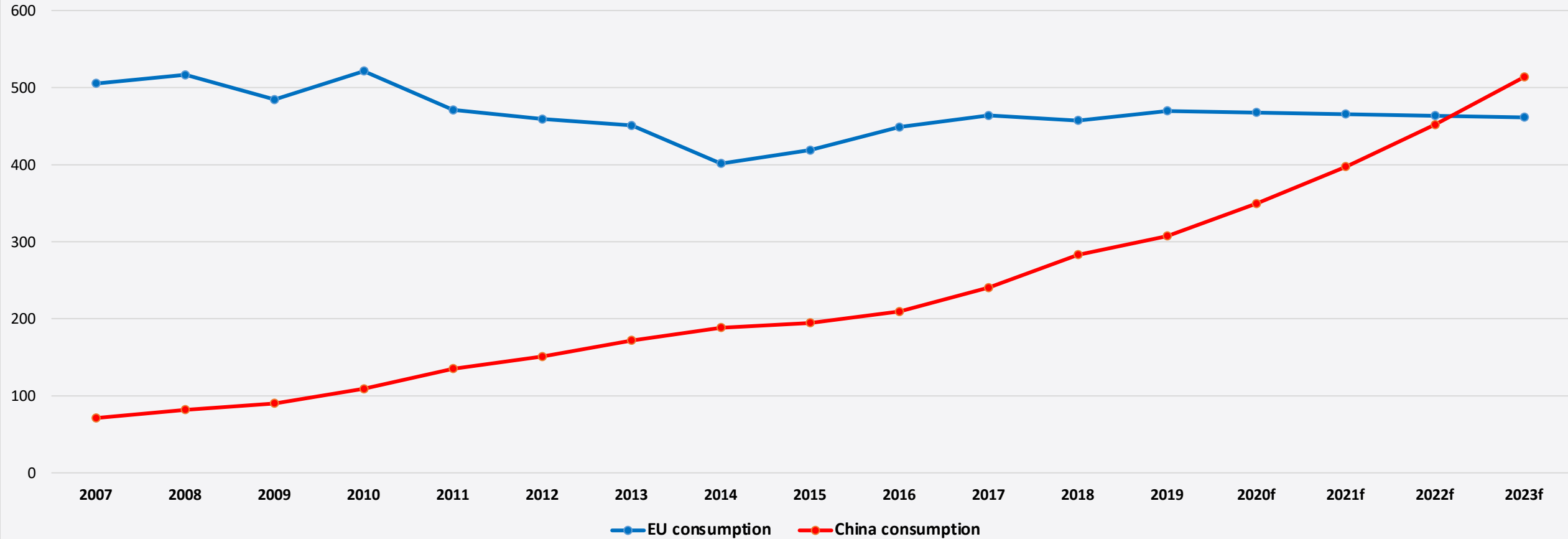
EU gas consumption, BCM
(scaled y-axis)



China will soon take over gas demand

Data source: BP Statistical Review of World Energy;
chart prepared by Sapiaenta Economics Ltd

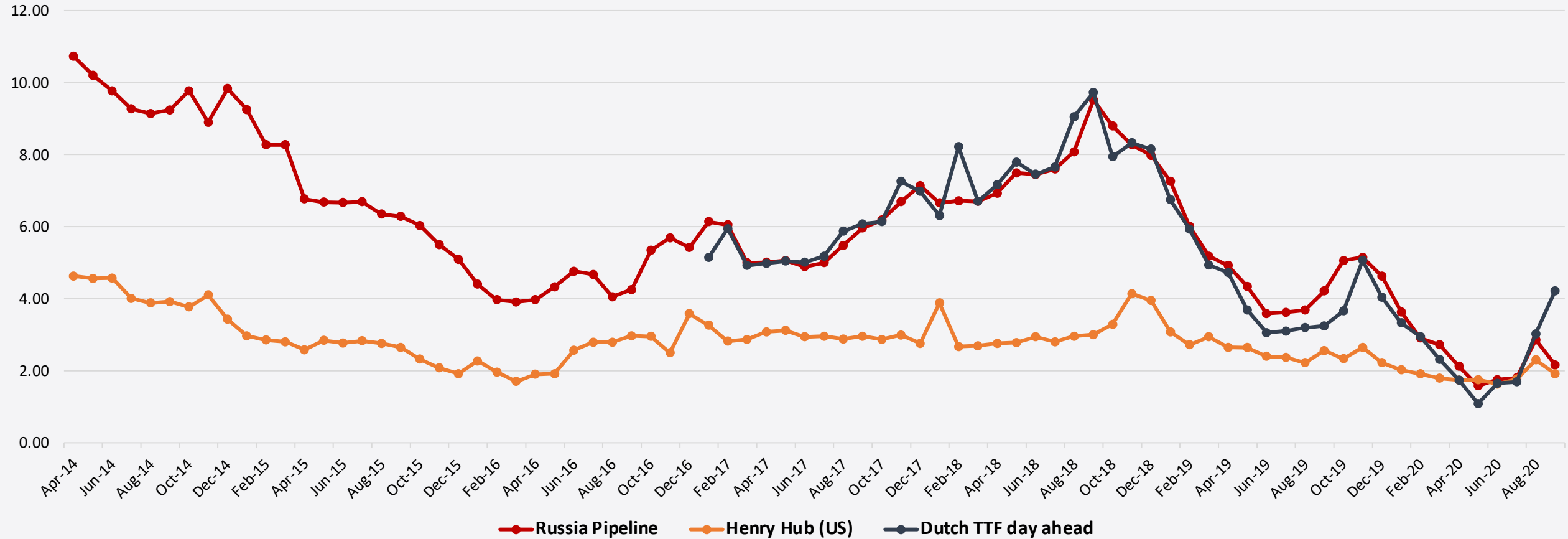
Scenario: EU v China consumption growing at average 2010-2019 rates (BCM)



Gas price pressure is downwards...

Data sources: IndexMundi; Platts;
chart prepared by Sapienta Economics Ltd

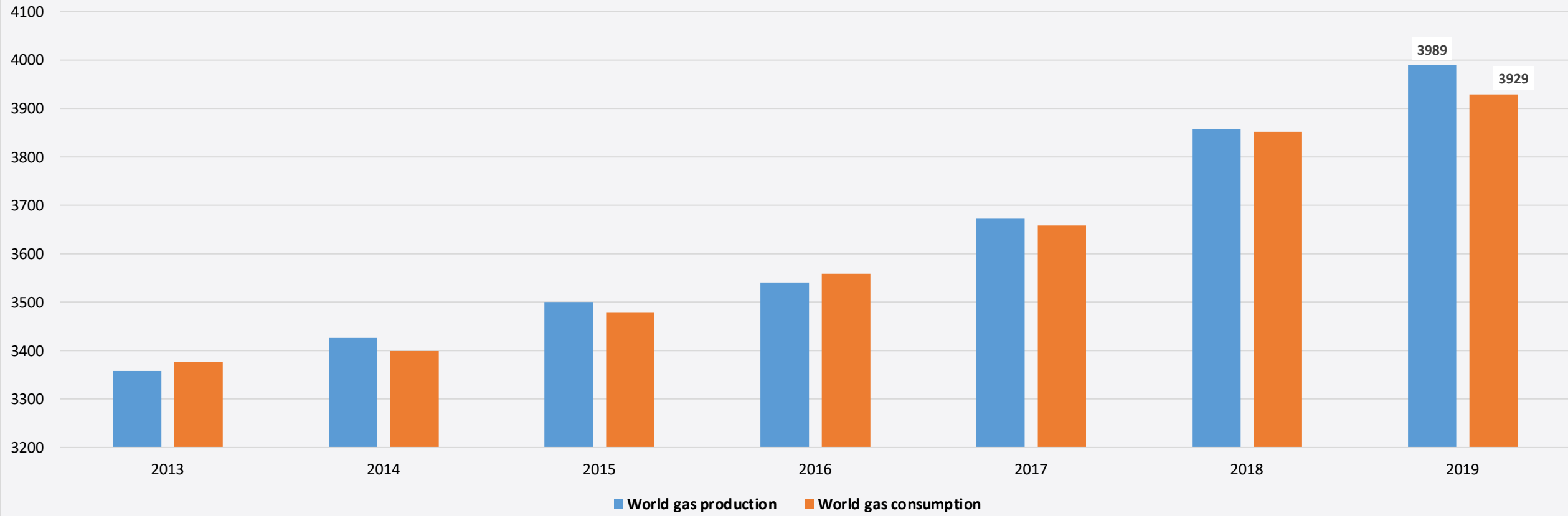
Natural gas prices, \$ per MMBTU



...because gas is oversupplied

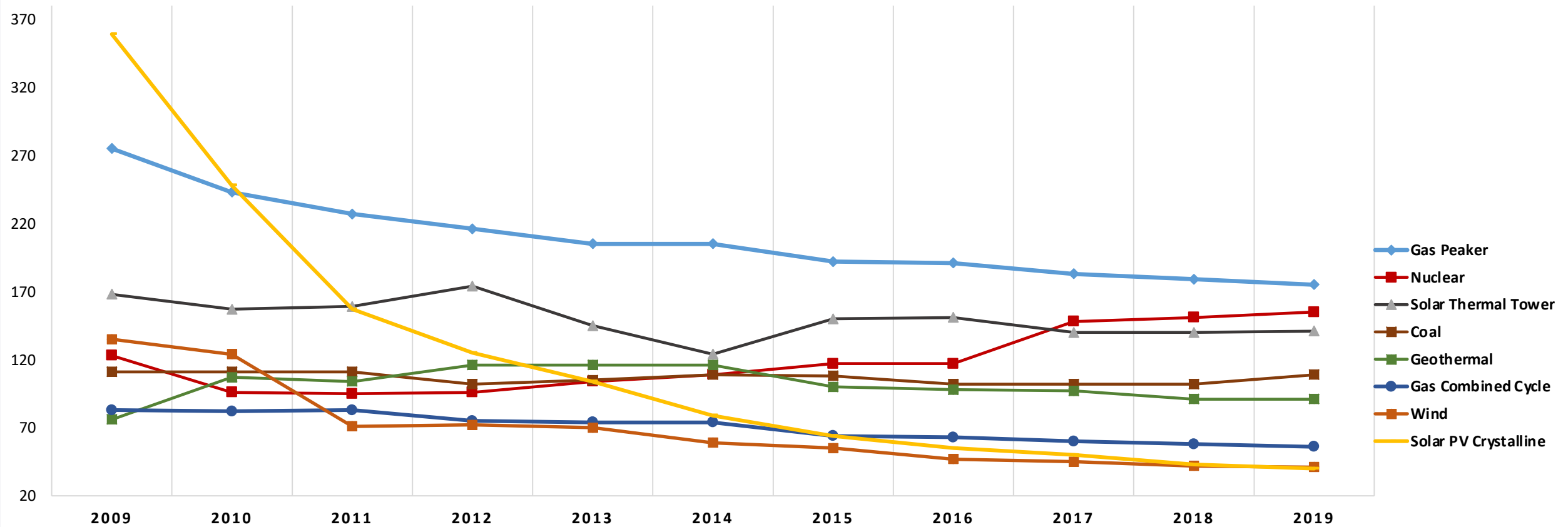
Data source: BP Statistical Review of World Energy;
chart prepared by Sapienta Economics Ltd

Recent world gas production and consumption (BCM)
(scaled y-axis)



The sun is already king

LAZARD LEVELIZED COST OF ENERGY (LCOE),
UNSUBSIDIZED, MEAN \$/MWH



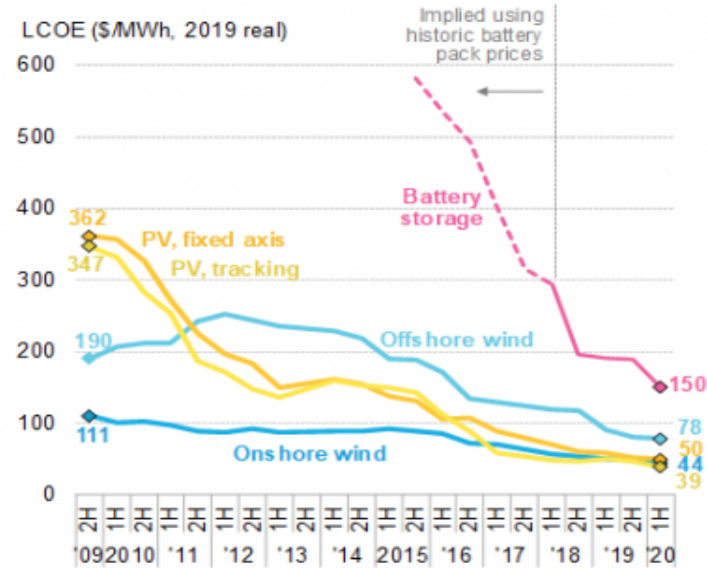
Technology is fixing the storage price issue...

GRID SCALE
MARKET WATCH

BloombergNEF: 'Already cheaper to install new-build battery storage than peaking plants'

Published: 30 Apr 2020,
10:16

By:
Andy Colthorpe



...and will get there on the environmental issue



Science for Environment Policy

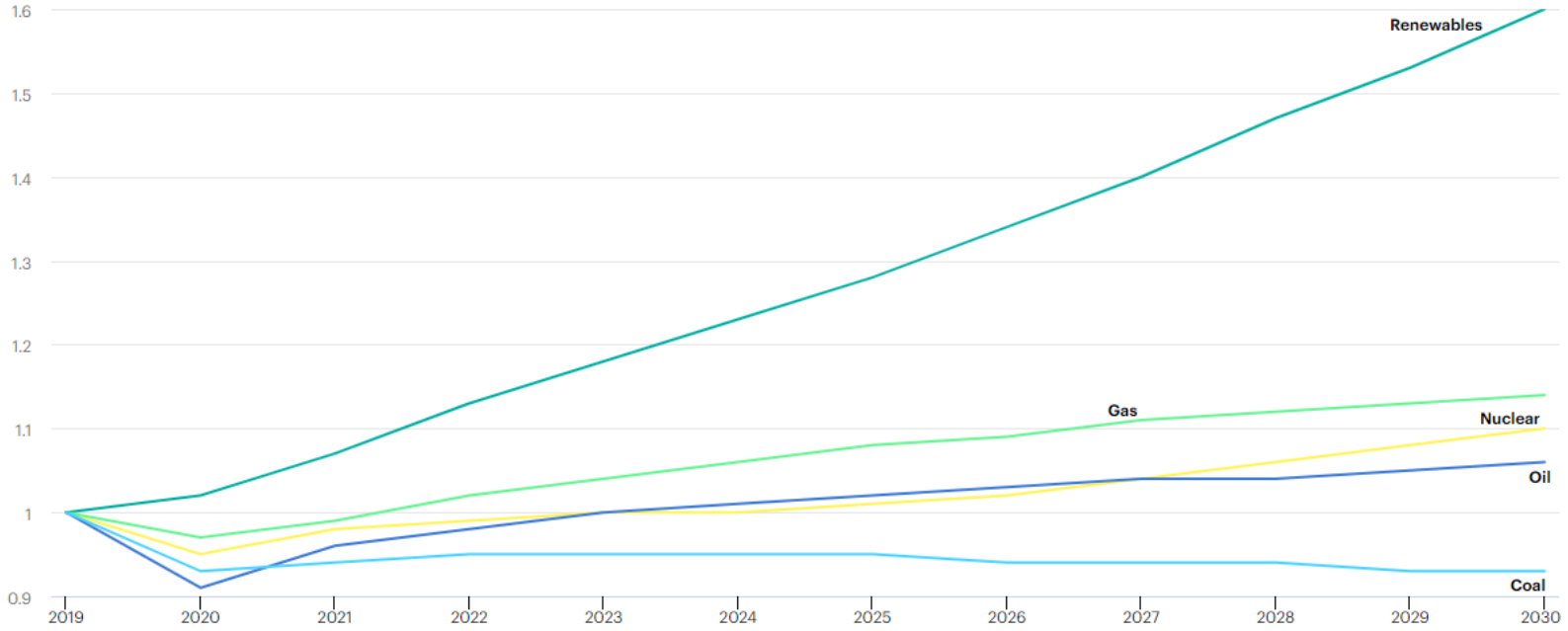
FUTURE BRIEF:

**Towards the battery
of the future**

September 2018
Issue 20

IEA energy demand by fuel to 2030

Primary energy demand by fuel, Indexed to 2019 levels



IEA. All Rights Reserved

● Coal ● Oil ● Gas ● Renewables ● Nuclear

How big are the East Med gas finds?

Cyprus discoveries ≤255 bcm

Announcement date	Field	Drilling company	Stage of discovery	Estimate in tcf
2011	Aphrodite	Noble	Recoverable	4
2019	Glaucus	Exxon	Gas in place	5-8
2019	<i>Glaucus</i>	<i>Exxon</i>	<i>Estimated recoverable</i>	<i>2.5-4.5</i>
2018	Calypso	ENI	n/a	Nothing official
2018	<i>Calypso</i>	<i>ENI</i>	<i>Low/high rumours</i>	<i>2.5-8.0</i>
Total generous estimate (tcf)				9.0
Total generous estimate (BCM)				255

Source: Company announcements.

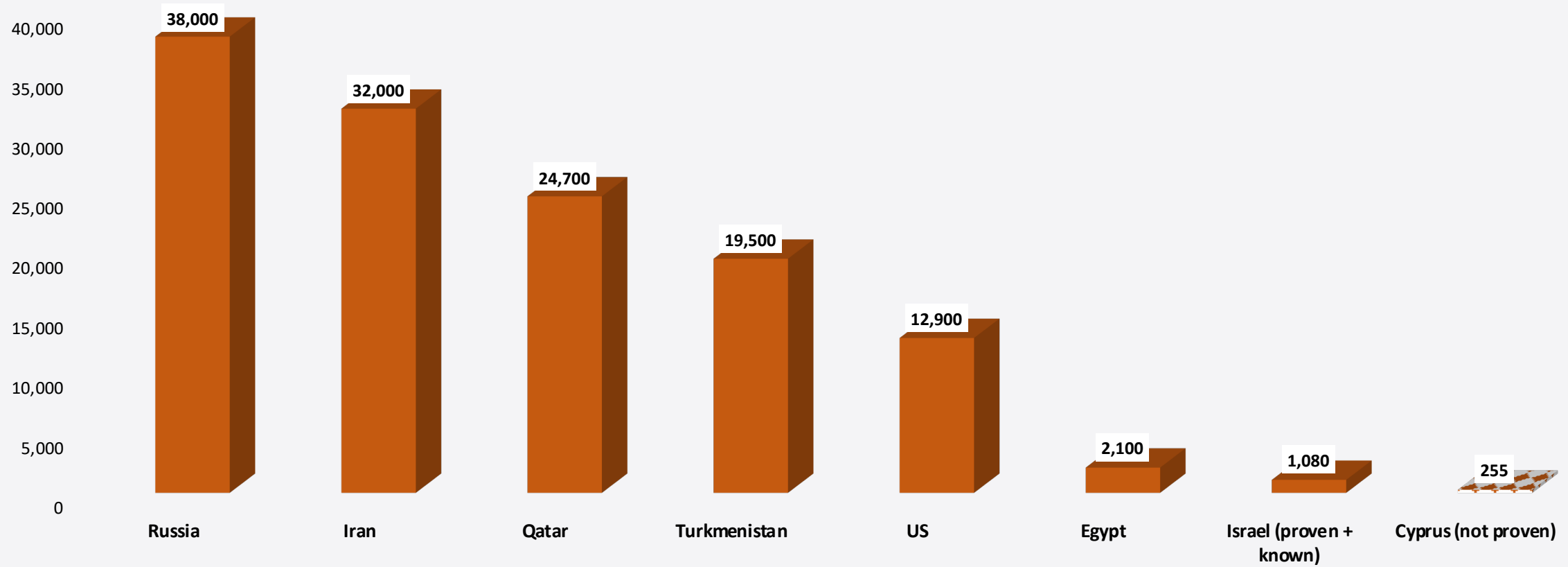
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World top 5 v. East Med proven reserves

World top 5 & East Med proven reserves, end-2019 (BCM)

Source: BP Statistical Review of World Energy; industry sources;
chart prepared by Sapienta Economics Ltd



Russia: 80 yrs of EU demand v ~3 yrs IL-CY

Data source: BP Statistical Review of World Energy;
chart prepared by Sapiaenta Economics Ltd

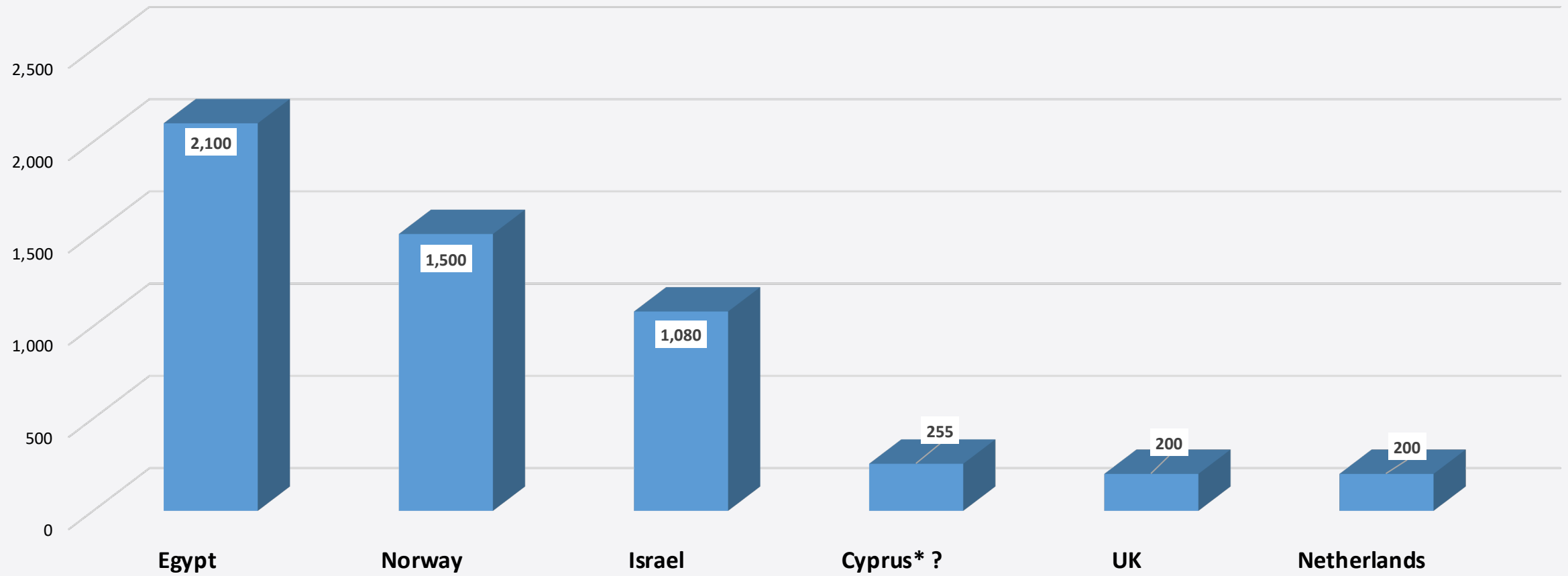
Russia & Cy-IL reserves v EU demand in one year (BCM)



Europe & East Med proven reserves

Data source: BP Statistical Review of World Energy;
chart prepared by Sapiaenta Economics Ltd

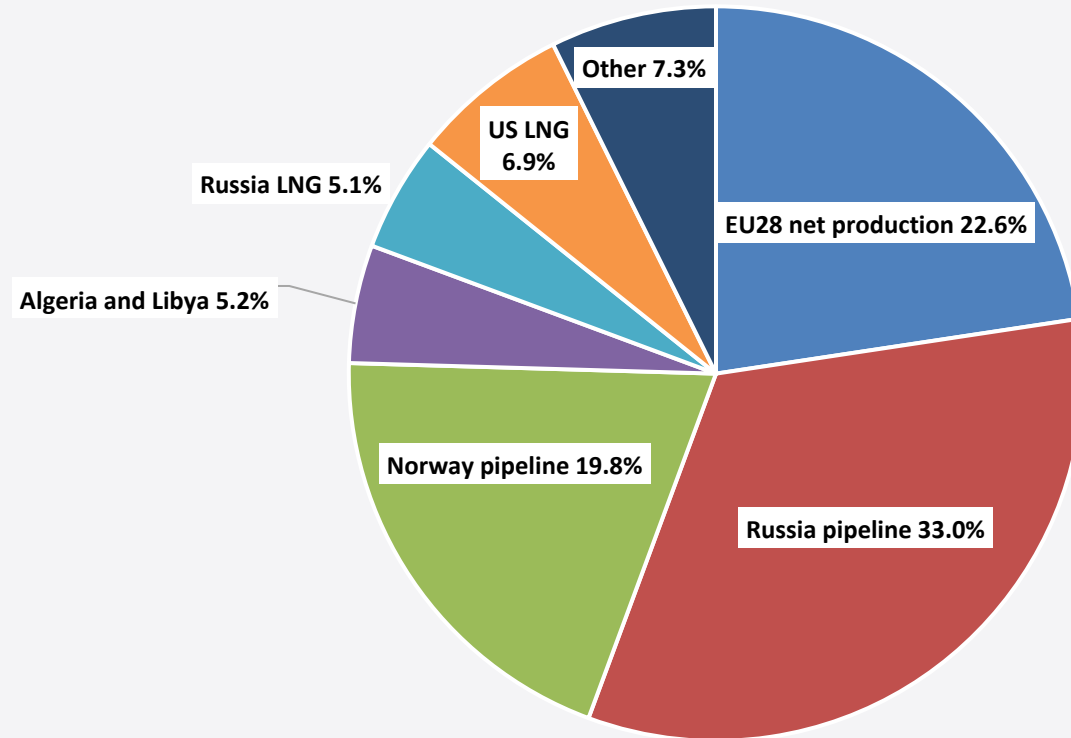
Western Europe & East Med proven reserves (BCM)



Any East Med supply will be at the margins

EU gas consumption by supplier country, 2019-20

Data source: EC Quarterly Report on European Gas Markets;
% inferred by Sapienta Economics Ltd



At what price is East Med gas viable?

At what prices is it viable?

Sapienta Economics gas viability model: price viability bands



End-customer purchase price, \$ per MMBTU

	TCF	\$3.5	\$4.28*	\$5.50	\$6.00	\$7.00	\$8.00	\$9.00
Turkey pipeline (4.1 TCF) (Cyprus only)	4.1	YES	YES	YES	YES	YES	YES	YES
FLNG (Glaucus/Calyp: 4.5 TCF) (Cyprus only)	4.1	NO	NO	YES**	YES**	YES**	YES**	YES**
Egypt Idku LNG plant (4.1 TCF) (Cyprus only)	4.1	NO	NO	NO	NO	YES	YES	YES
East Med pipeline (20.9 TCF) (Cyprus and Israel)	20.9	NO	NO	NO	NO	NO	NO	YES

*Average 2019 Dutch TTF spot price. **Based on Oxford Economics March 2019 paper.

Model inputs include cost of exploration, production, pipelines, transport, finance, NPV, etc.

How do we make it viable?

- Broaden the East Med market **beyond gas**
- Gas - **Renewables** - Interconnectors
- Green hydrogen? **Communications** tech?
- We need **top energy experts** to flesh out possibilities
- We need low-cost **finance**: SWFs, PEs, EIB, EBRD
- We need a **grand energy deal** for the East Med

Recommendations to policy-makers

- Understand that East Med gas is **not viable** by itself
- Help politicians **build a vision** for a broader energy mix
- **Facilitate** the finance that will make it viable
- The **political deals** will follow

Shameless plug

Sapienta Country Analysis Cyprus

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 - ✓ Cyprus problem | Political outlook
- ✓ Energy | Healthcare | Sectoral policies & reforms
- ✓ Selected northern Cyprus economic indicators

We are confident no organization can match our breadth and depth on Cyprus