Background information on Russia gas flows and supply to the UK

1) How much gas is imported into the UK from Russia – directly or indirectly?

We would like to note that with the exception of direct shipments of liquefied natural gas (LNG), the origin of physical gas imports into the UK are difficult or impossible to determine with certainty since the UK is connected to a complex web of gas pipelines spanning Norway and Continental Europe through which gas molecules cannot be traced.

We can however estimate a likely figure based on aggregate gas flows from Russia to Europe and Europe to the UK. In the following sub-sections we provide various import and export statistics and estimate how much of the physical gas UK imported could possibly came from Russia.

UK Gas imports, exports and demand in 2016-17 (Source: UK BEIS)

The UK is a net importer of gas on an annual basis, though it also exports material amounts of gas in the summer months:

- In 2016 total imports were 48.5 Billion cubic meters (Bcm) which fell by 1.6% to 47.7 Bcm in 2017.
- In 2016 exports were 10.3 Bcm and rose by 10.8% to 11.4 Bcm in 2017.
- Therefore, the UK's net imports (imports minus exports) were 38.2 Bcm and 36.3 Bcm in 2016 and 2017 respectively.
- The total gas consumption in the UK (excluding exports, producers own consumption, and losses) were 76.9Bcm in 2016 and 74.5Bcm in 2017.

In terms of net imports (imports minus exports) as a proportion of consumption, this was 49.6% in 2016 which dropped to 48.7% in 2017. If gas exports are considered as part of total UK gas demand, then total imports as a proportion of gas demand were approximately 56% over 2016-17.

To put these numbers into perspective, a relatively new, large 1GW combined cycle gas turbine type power plant running at 80% load factor consumes about 1.4 Bcm of gas per year. Alternatively, 1 Bcm is consumed by 900,000 households in a year based on average consumption assuming seasonal normal temperatures.

Geographical distribution of gas imports and exports (Source: UK BEIS)

GAS IMPORTS					
(BCM)	**Belgium**	**Netherlands**	**Norway**	**LNG**	**Total**
2016	1.4	4.4	31.7	11.0	48.5
2017	2.6	1.9	35.9	7.3	47.7

GAS EXPORTS						
(BCM)	**Belgium**	**Netherlands**	**Rep. of Ireland**	**Isle of Man**	**LNG Re-exports**	**Total**
2016	6.1	1.6	2.0	0.1	0.5	10.3
2017	8.0	1.1	1.8	0.1	0.3	11.4

Gas imports coming from Russia (Source: UK BEIS, IEA)

In 2017 Russia exported 164 Bcm of gas to Europe (not including Turkey). 164 Bcm is 38% of Europe's own production plus imports, and 61% of total imports. In the same period the UK imported 4.5 Bcm from continental Europe. If we pro-rate 4.5 Bcm using 38%, then it is possible that 1.71Bcm of natural gas the UK imported originated in Russia.

Gazprom reports to have delivered nearly 16 Bcm of gas to the UK during 2017. However for this to be true almost all of it would need to be purchased by Gazprom in the UK or Norway and resold in the UK, as total UK imports from the continent in 2017 only accounted for 4.5 Bcm. It is more likely that this volume includes at least some gas traded by Gazprom's London based trading arm (Gazprom marketing and trading, GM&T) which would include trades executed on the Continent but may be assigned to Gazprom's Marketing and Trading in the UK for financial reporting purposes.

In 2018, UK imported three LNG cargoes which came from Russia each of which delivered c0.1Bcm of gas.

2) How much of British Gas' gas is imported into the UK from Russia – directly and indirectly?

Centrica has a 4.2 Bcm per annum supply (purchase) contract with Gazprom Marketing and Trading, though we note that the gas need not come from Russia.

Our energy marketing and trading business trades gas with Russian counterparties or with counterparties that may have sourced gas from Russia, however, it is very difficult to establish how much of the gas is physically imported in the UK, based on commercial transactions.

3) What would be the consequences for Britain's gas supply security if Russia restricted/stopped selling gas to the UK

In terms of physical security of supply, as gas molecules cannot be traced through the pipeline systems across borders as highlighted above, it would be very difficult for Russia to restrict physical delivery of its gas to the UK, which at any rate is likely to be a small proportion of UK's gas market.

Russia could in theory seek to restrict gas supplies into Europe by reducing pipeline pressures temporarily. This could create material price volatility in the marketplace which could lead to financial losses. However, we note that most of Russia's contracted gas sales to Continental buyers are delivered based on buyers' nomination and Gazprom has a legal obligation to deliver as much gas as the buyer asks, within the defined quantities in the contracts. It would be risky and complicated for Gazprom to violate the terms of the contracts. Not only Gazprom and the Russian government would face financial losses, but also this could trigger measures in Russia's largest gas export market to switch away from gas or use alternative import sources.

Substantial and prolonged or permanent cut to gas exports into Europe would be very damaging to Europe as it would be very hard to replace these exports with other gas or sources of energy at least in the short term. Gas prices would rise materially and shortages would be likely. However, the outcome of this would be very damaging to Russia as well since c70% of Russian export revenues, which also form a material portion of the government revenues come from international gas and oil sales.

Apart from physical security of supply, sanctions and restrictions on commercial activity could make it difficult to trade gas with Russian entities or more generally, which would negatively impact the ability of the market players that source gas for their customer's needs.