Russia is the second largest supplier of pgms after South Africa. PGM output, which is mainly a by-product of nickel and copper extraction, is strongly dependent on the economics of base metal mining. Supplies from the dominant producer, Norilsk Nickel, have been maintained by exploiting increasing volumes of disseminated ore as well as tailings and stored pyrrhotite.
concentrate in recent years. Operational and environmental challenges mean that the capacity to increase pgm output is limited and, without substantial investment in new mines and processing capability, we anticipate that output will remain largely flat in the near term. This special feature looks at what might fill the void in Russian pgm supplies in future.

Taimyr peninsula
This is the main location for Norilsk Nickel’s mining and processing operations (Polar Division) and is where the vast majority of Russia’s pgm supplies are being mined. The Oktyabrsky, Talnakh and Norilsk-1 ore bodies are currently being mined primarily to produce nickel and copper with pgm as a by-product. PGM grades vary by ore type. Enrichment at metallurgical facilities in the Norilsk-Talnakh area results in nickel, copper and pyrrhotite concentrates which are then converted to high-grade matte. Precious metals produced by the Polar Division are refined under tolling agreements at Krasnoyarsk.

Estimated pgm resource: [ ]
Estimated pgm grade: [ ]

Koryak-Kamchatka platinum belt
Alluvial deposits producing around 20,000 oz of platinum per year.

Chernogorskoye
Russian Platinum is currently exploring disseminated deposits at Chernogorskoye, close to Norilsk-Talnakh.

Estimated pgm resource: [ ]
Estimated pgm grade: [ ]

Verkhne Kingash deposit
The disseminated sulphide copper-nickel ores of this project are low in pgm content. Estimated mined volume of ore is 10 million tonnes per year. Work is planned on those deposits using two open pits: Verkhne Kingashsky and Kuevsky.

Estimated pgm resource: [ ]
Estimated pgm grade: [ ]

Maslovskoye deposit
This deposit is being explored by Norilsk Nickel. The main ore body extends along the central axis of the Norilsk intrusion. There are also seven smaller ore bodies, which account for 2 to 3% of the total deposit. By volume, the Maslovskoye deposit is comparable to the Norilsk-1 ore body.

Estimated pgm resource: [ ]
Estimated pgm grade: [ ]

Kondyor deposit
Russian Platinum alluvial deposits producing around 120,000 oz of platinum per year.

Scan the QR code to see an interactive map.
Further exploration of the deep horizons of the currently mined amount of pgm comes from material mined by Kola MMC. Copper, nickel and pgm production. At present only a small ore field as well as substantial metallurgical operations for northwest Russia (Kola MMC) include the Pechengskoye deposit, a large platinum-copper-nickel deposit, may also contribute to future supplies. Longer term, the Maslovskoye deposit, a large platinum-copper-nickel deposit, may also contribute to future supplies. The Chernogorskoye deposit, close to the Norilsk-Talnakh ore field, may have the potential to substantially contribute to future supplies. Additional resources are being explored on this deposit by Russian Platinum Plc.

KOLYA PENINSULA
Norilsk Nickel’s mining operations on the Kola peninsula in northwest Russia (Kola MMC) include the Pechengskoye ore field as well as substantial metallurgical operations for copper, nickel and pgm production. At present only a small amount of pgm comes from material mined by Kola MMC. Further exploration of the deep horizons of the currently mined Zhdanovskoye deposit is taking place, and development of the Severny- Glubokoye mine is continuing. In future, this mine is likely to be exploited in order to maintain production levels following the closure of the Tsentralny open pit. In addition, exploration is also taking place on the Vuruchuaivench deposit close to Norilsk’s Monchegorsk metallurgical operations which could bring fresh ounces. For the longer term, Norilsk Nickel is exploring new deposits on the Kola peninsula containing up to 120 tonnes of pgm, which could make a contribution to supplies in future.

Other possible projects on the Kola peninsula include those being explored by Eurasia Mining in three license areas close to Monchegorsk. The Federovo Pana province is another promising area of exploration east of Monchegorsk. There, a number of companies are carrying out exploration and development projects: the Federova Tundra deposit is planned to be exploited by Barrick Gold via two open pits plus a concentrator. Further south of Kola, in Karelia, Norit is said to be awaiting operation of Barrick Gold’s planned concentrator before beginning production.

OTHER REGIONS
Just under a fifth of Russia’s platinum output currently comes from alluvial deposits. These deposits occur as platinum grains in river sediment that can be enriched by washing and gravity separation. They were historically mined in the Urals region and were the most important source of pgm before the start of operations on the Taimyr peninsula. Most of the alluvial production today is located in the Russian far east, on the Kondyor deposit and the Koryak-Kamchatka platinum belt, however these operations have limited remaining life. Another area of alluvial pgm production is in the Sverdlovsk region of the Ural mountains. New alluvial projects and the restart of old suspended operations could add to production in future.

SUMMARY
Several development and exploration projects are currently taking place in Russia. Some of these are intended to replace existing capacity at Norilsk Nickel’s operations, others offer new production potential by junior producers. However, the timescale for these projects is uncertain and they are unlikely to offset declining pgm output at the more established underground and open pit operations in the near term. With significant investment, including in some cases a complete development of local infrastructure, there are a small number of new projects which have the potential to add reasonable volumes to current pgm output.