



# Current trends and outlook for PGM Autocatalyst Recycling

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IPMI Seminar: PGM Catalyst Use & Recycling

7<sup>th</sup> November, 2016

# About Metals Focus

- Independent
- Highly experienced
- Far reaching travel programme

# Importance of Platinum Autocatalyst Recycling

2007

Moz

7

6

5

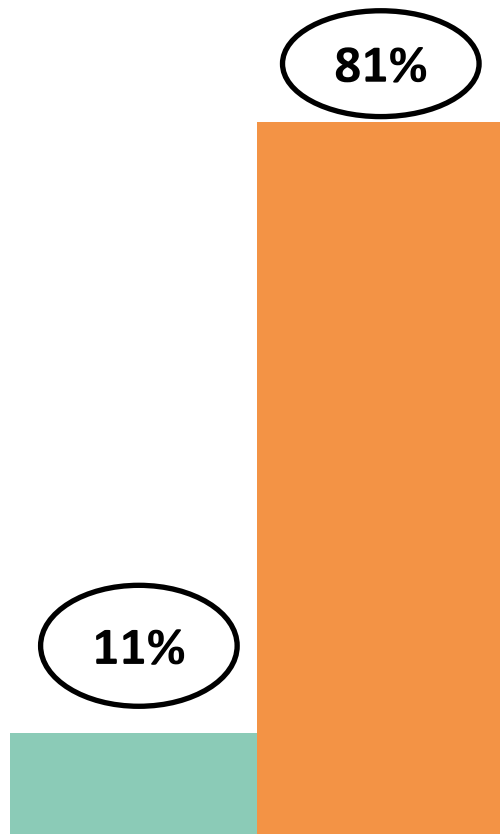
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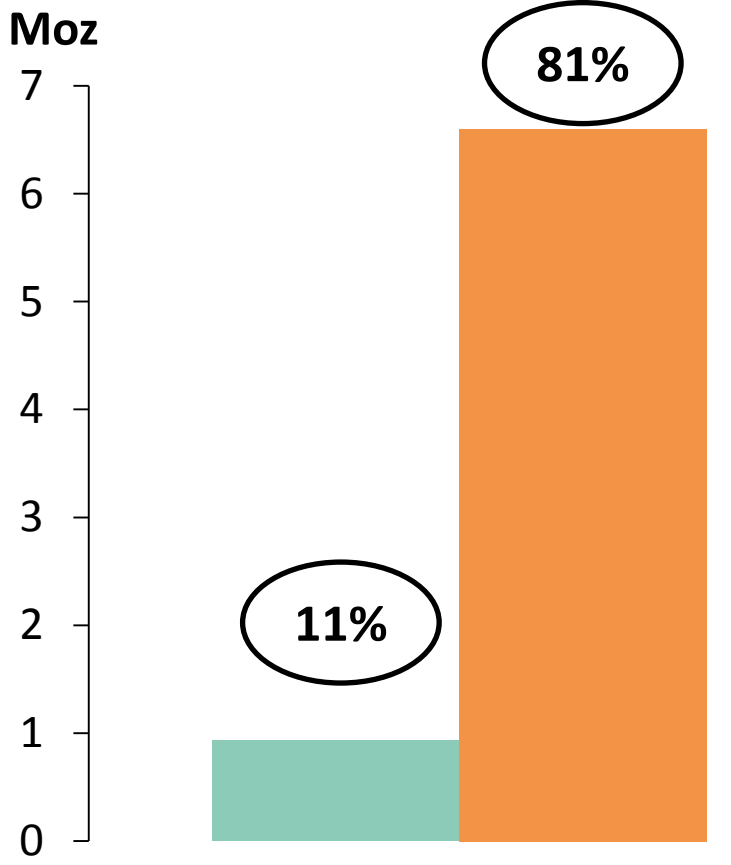
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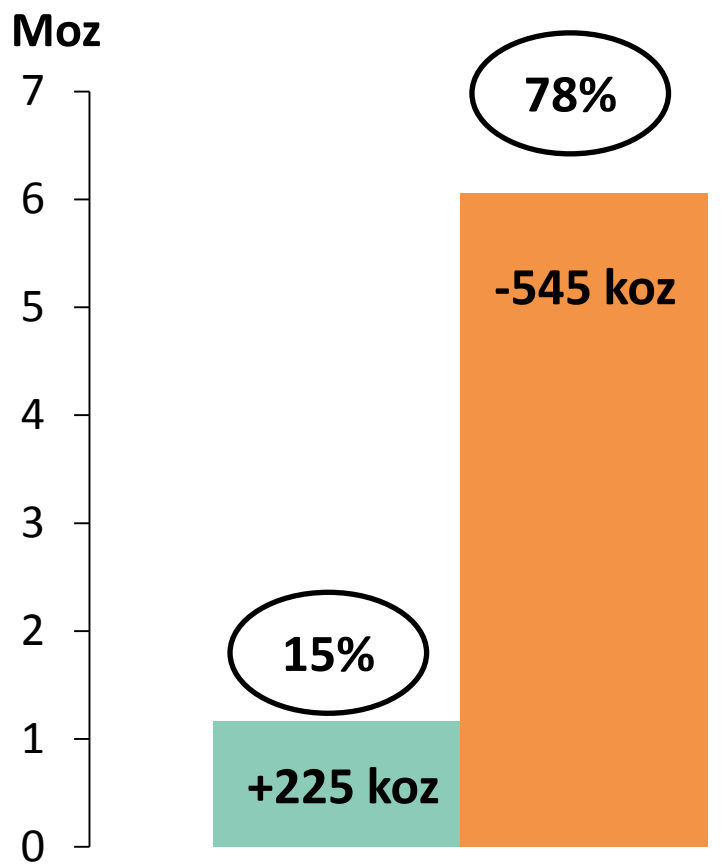


# Importance of Platinum Autocatalyst Recycling

2007



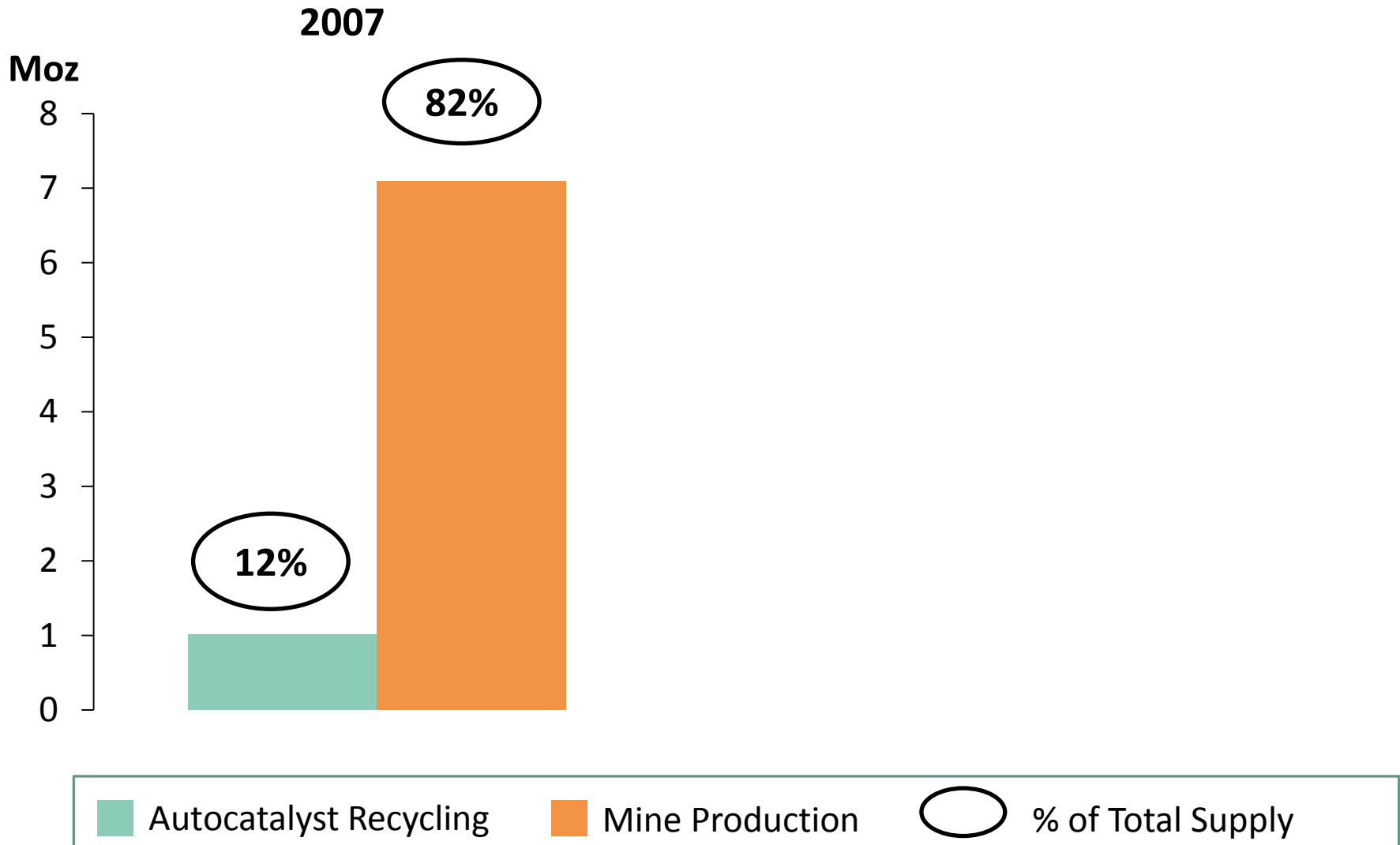
2016E



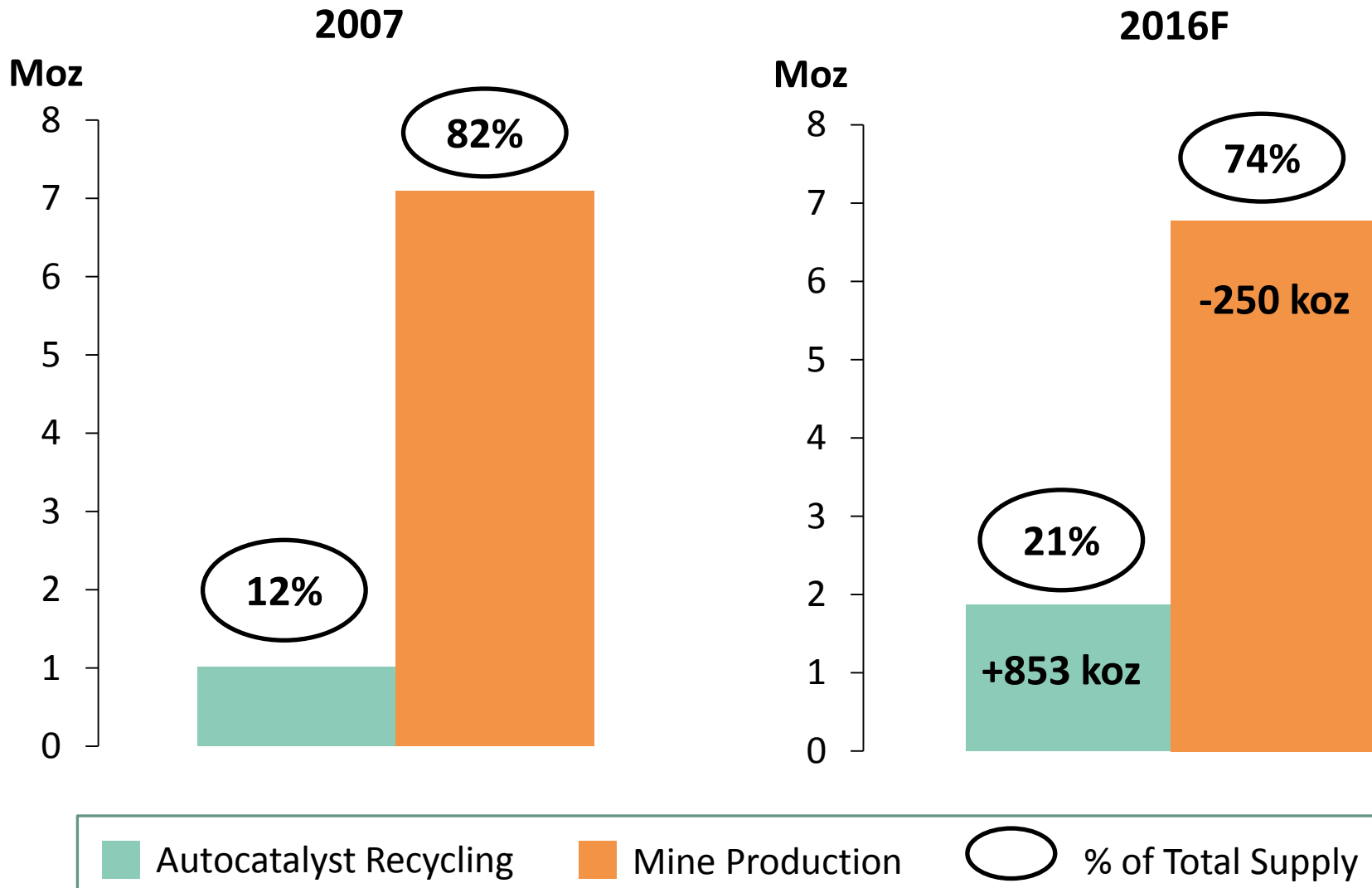
■ Autocatalyst Recycling   ■ Mine Production   ○ % of Total Supply

Source: Metals Focus, Johnson Matthey

# Importance of Palladium Autocatalyst Recycling



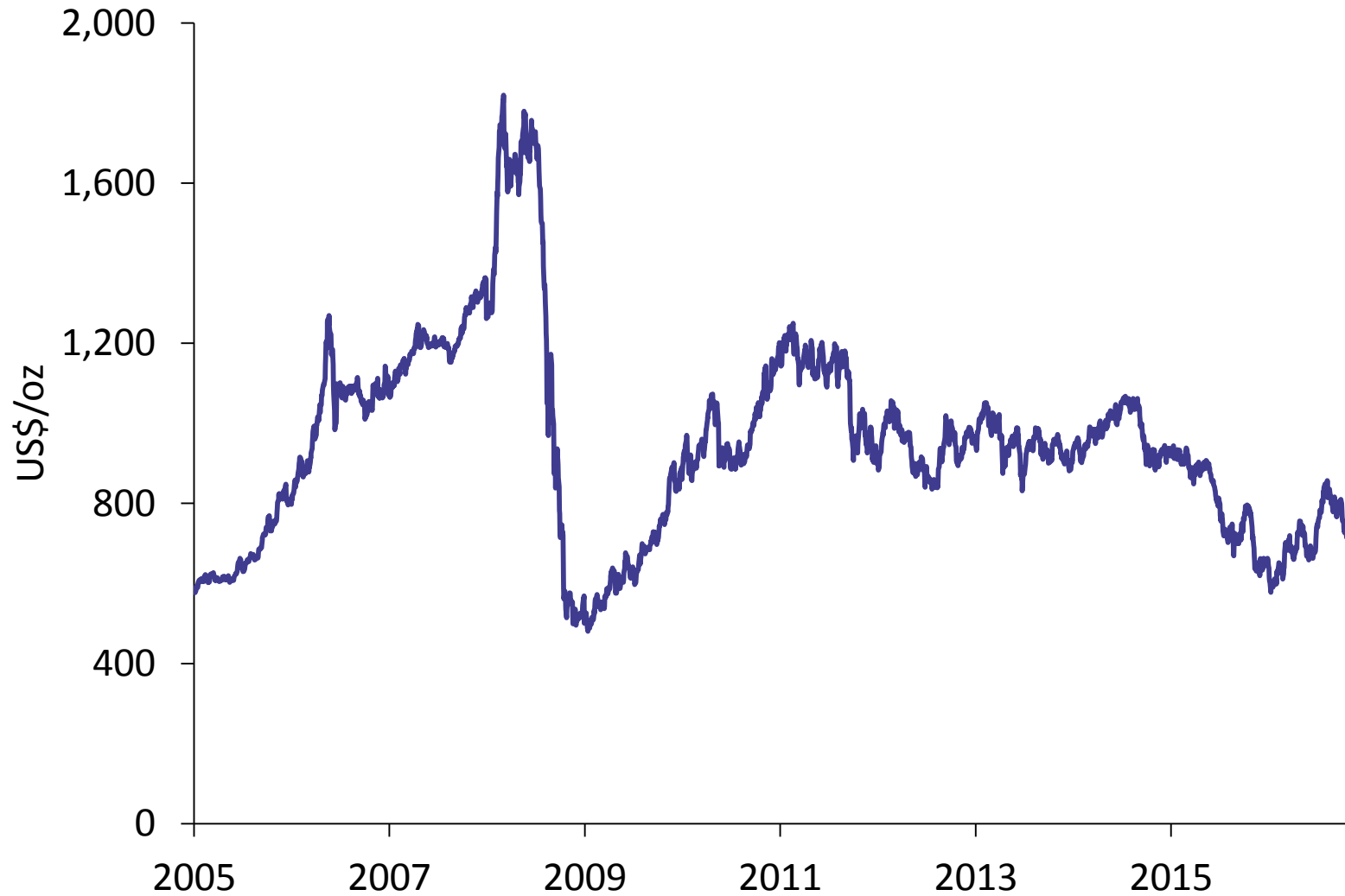
# Importance of Palladium Autocatalyst Recycling



# Drivers of Autocatalyst PGM Recycling

- Short-term
  - PGM & steel prices
  - Economic climate

# PGM Basket Prices

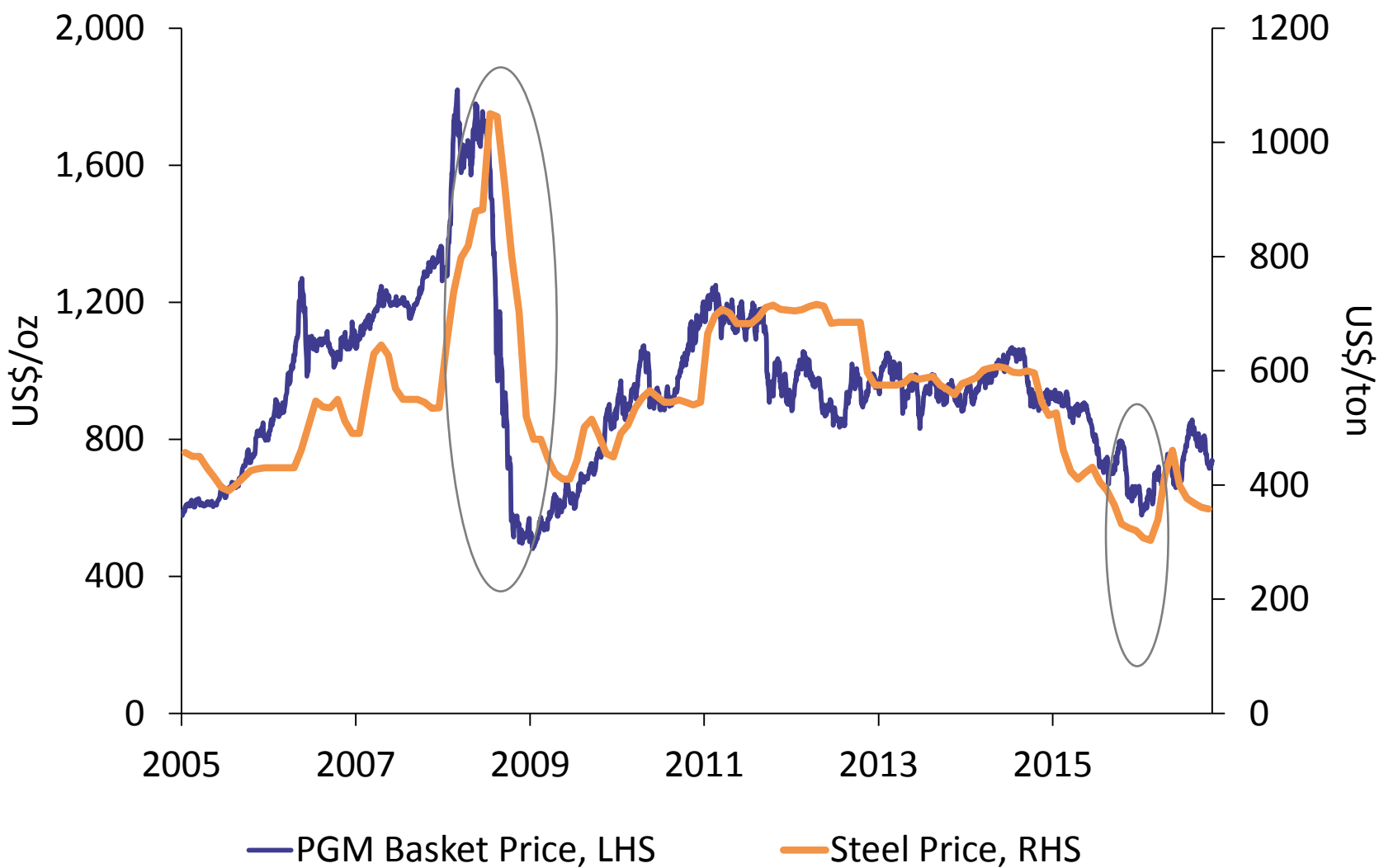


Source: Bloomberg





# PGM Basket & Steel Prices



Source: Bloomberg



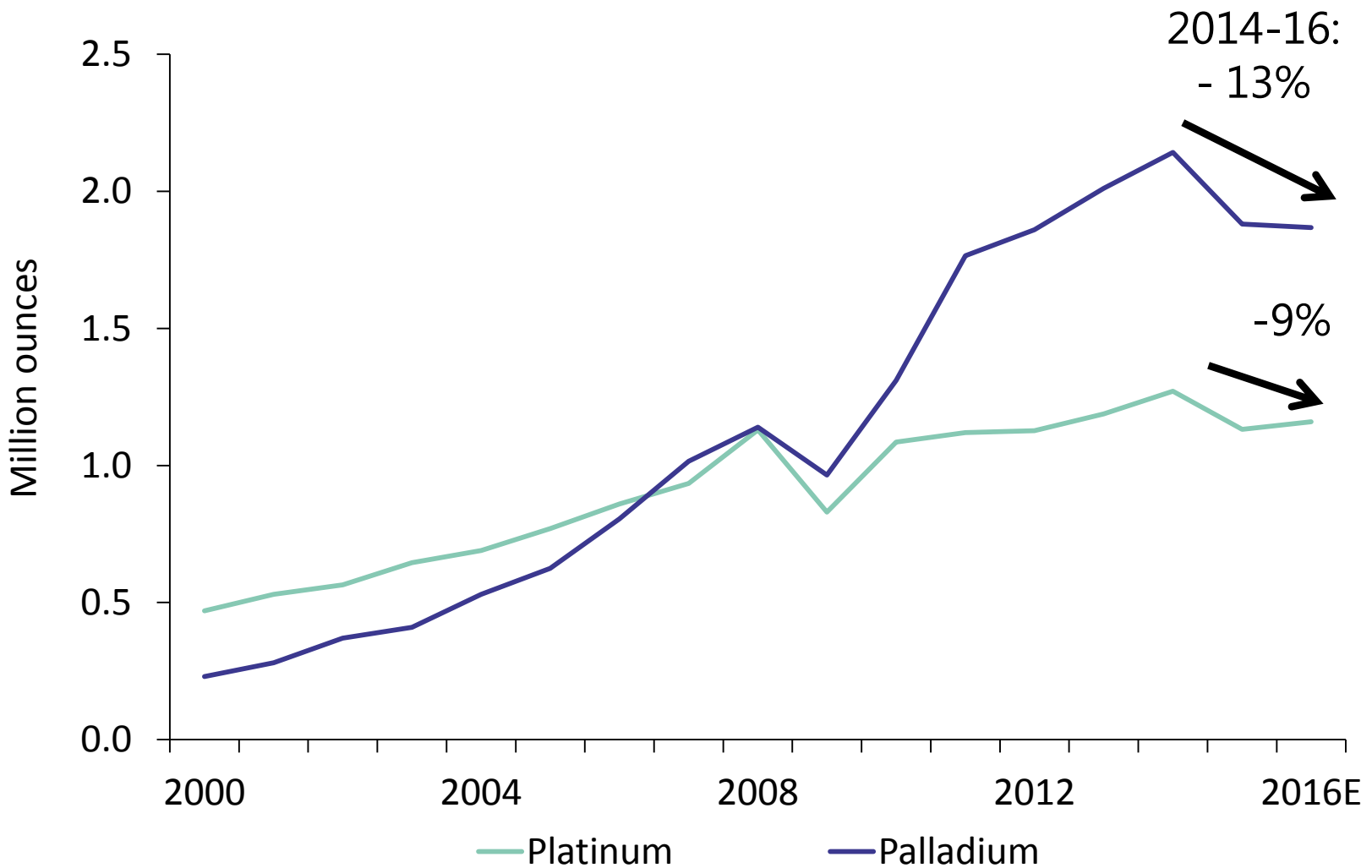
# GDP Growth in Industrialised Countries



Source: IMF World Economic Outlook



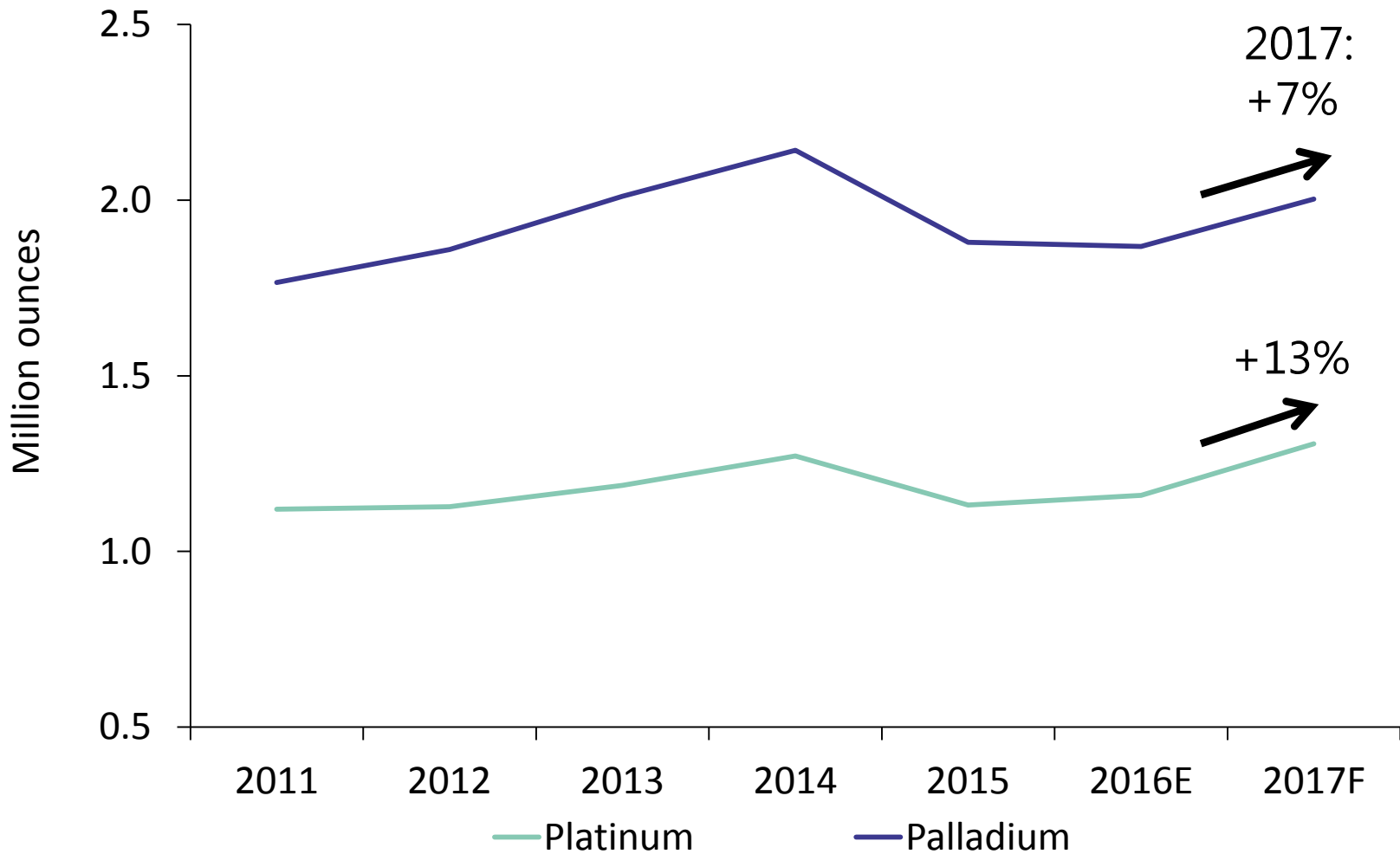
# Autocatalyst Recycling: 2015 saw first drop since 2009



Source: Metals Focus, Johnson Matthey



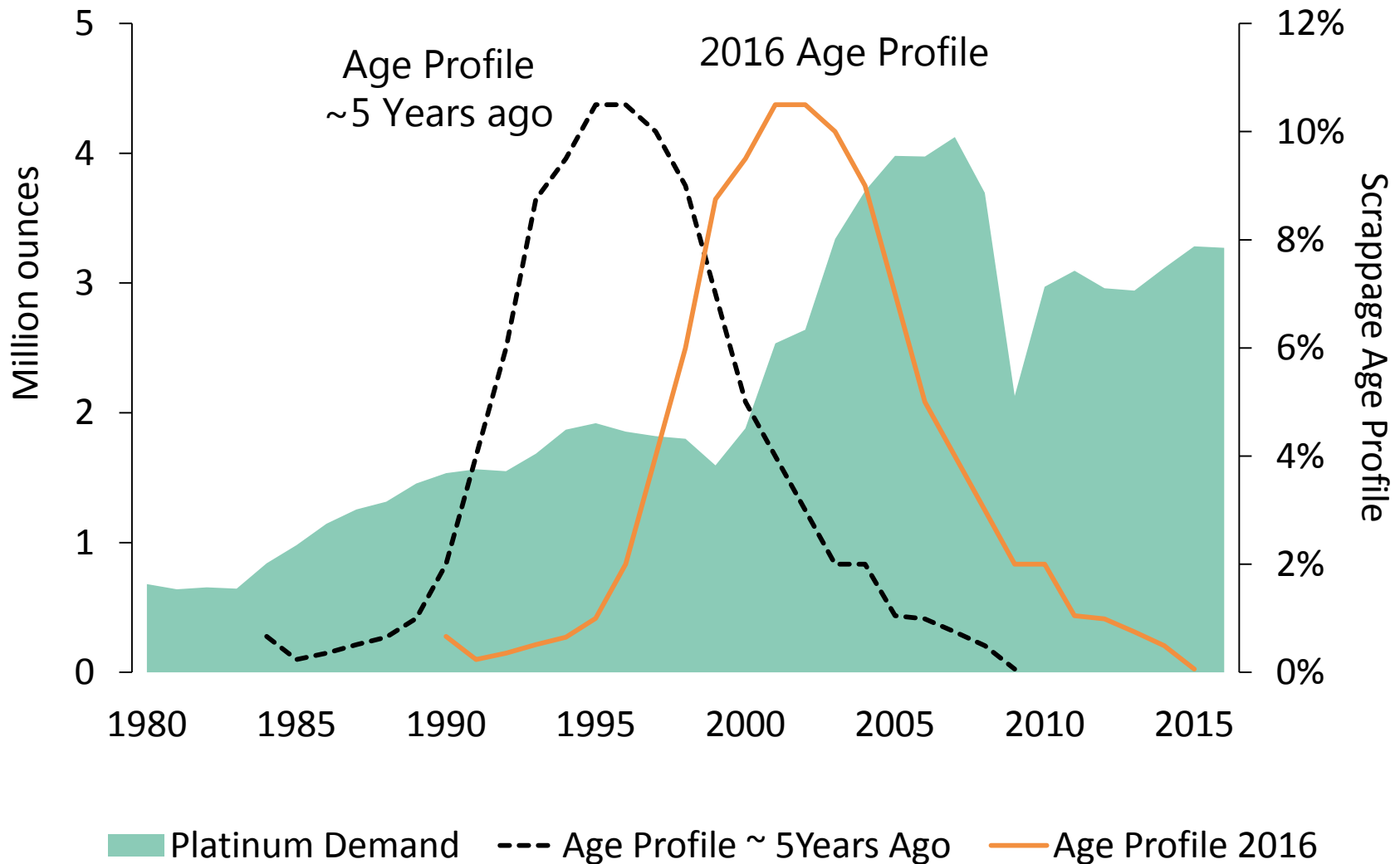
# Autocatalyst Recycling: growth resumes



# Drivers of Autocatalyst PGM Recycling

- Short-term
  - PGM & steel prices
  - Economic climate
- Long-term
  - Tighter/more widespread emissions legislation
  - Historic PGM demand
  - Vehicle life cycles

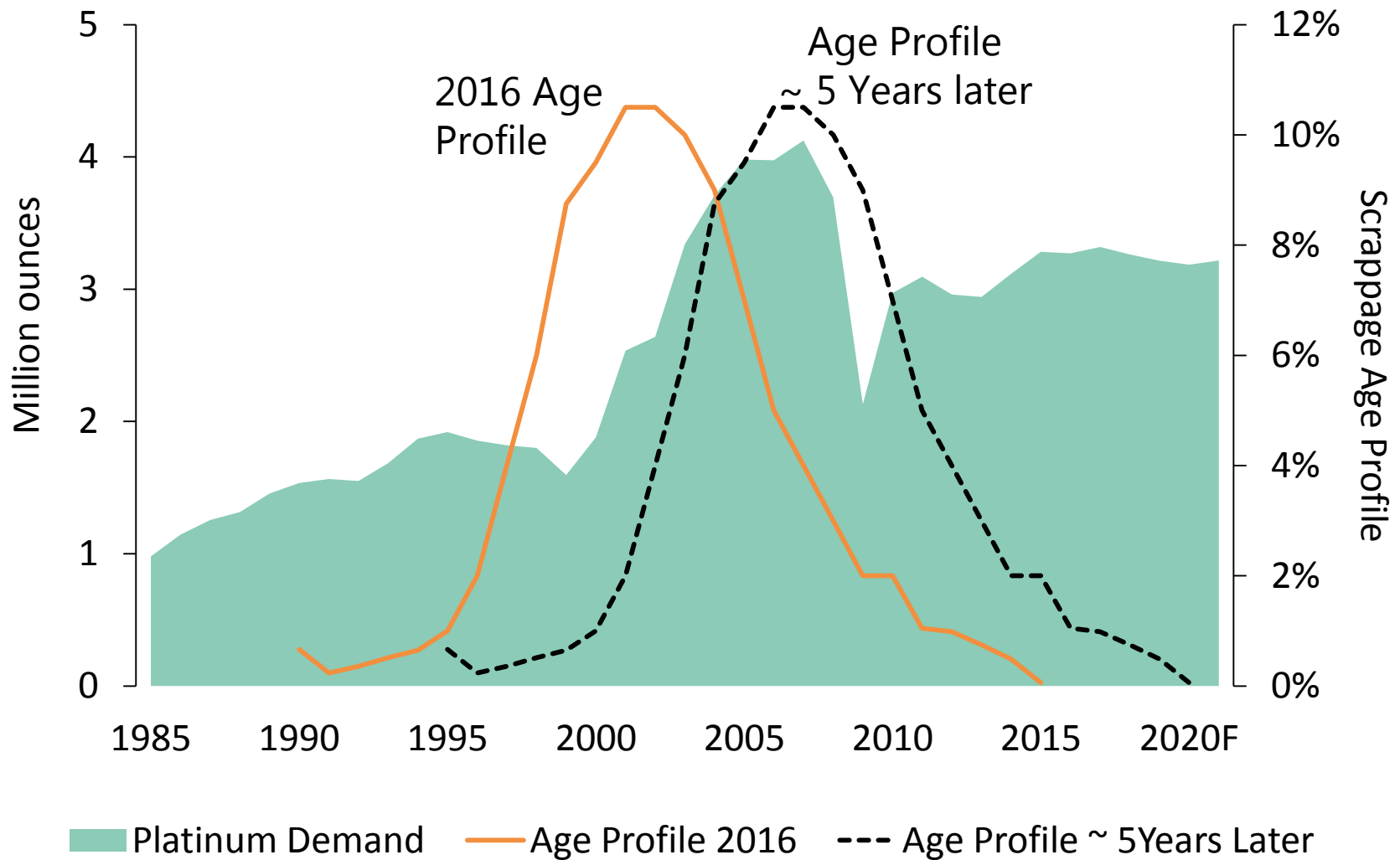
# Scrappage Age Profile: Impact on Platinum Recycling



Source: Metals Focus, Johnson Matthey



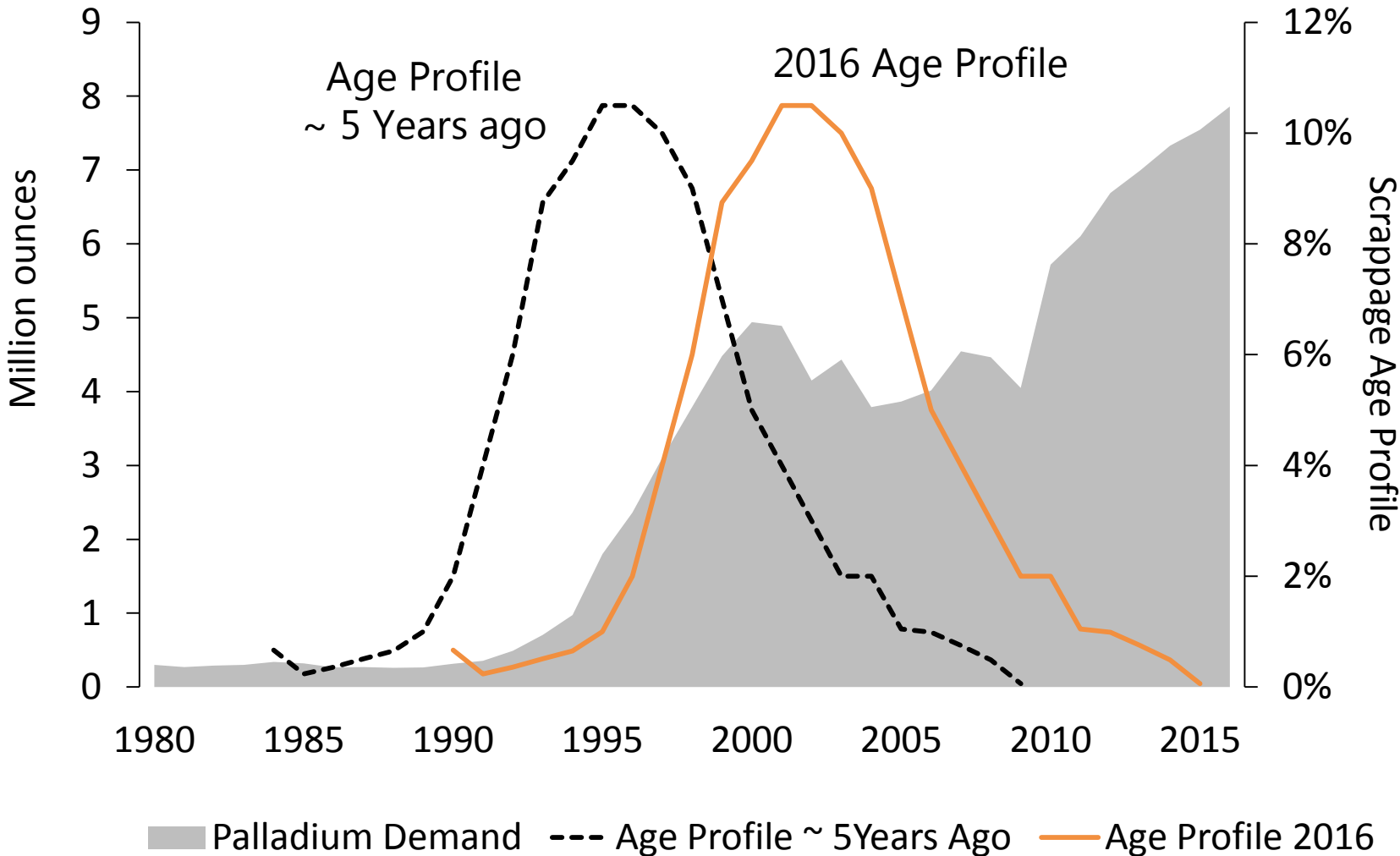
# Scrappage Age Profile: Impact on Platinum Recycling



Source: Metals Focus, Johnson Matthey



# Scrappage Age Profile: Impact on Palladium Recycling

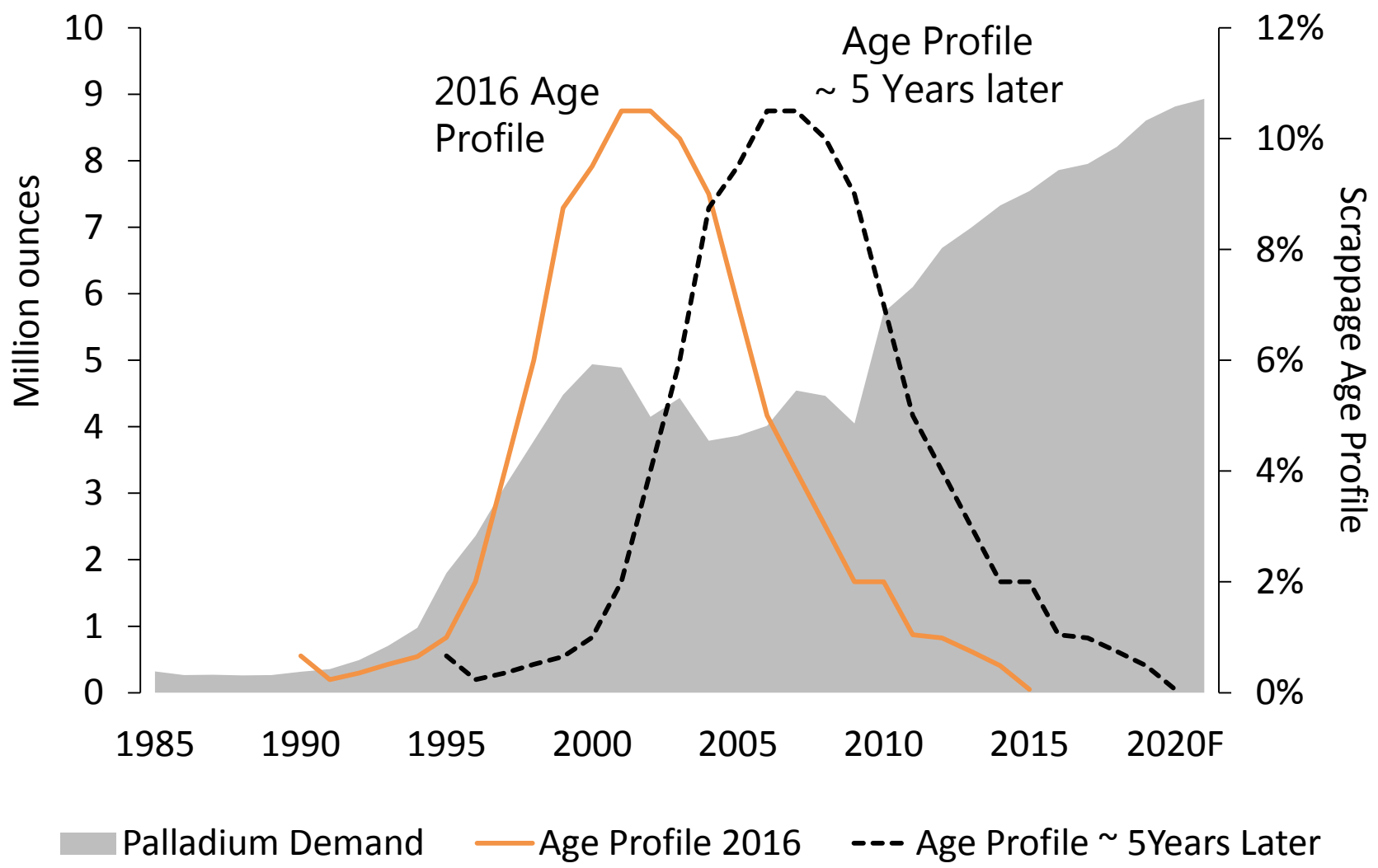


Source: Metals Focus, Johnson Matthey





# Scrappage Age Profile: Impact on Palladium Recycling

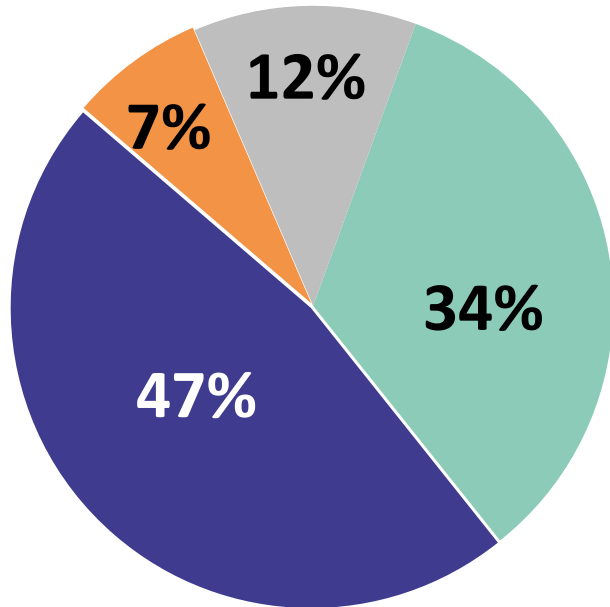


Source: Metals Focus, Johnson Matthey

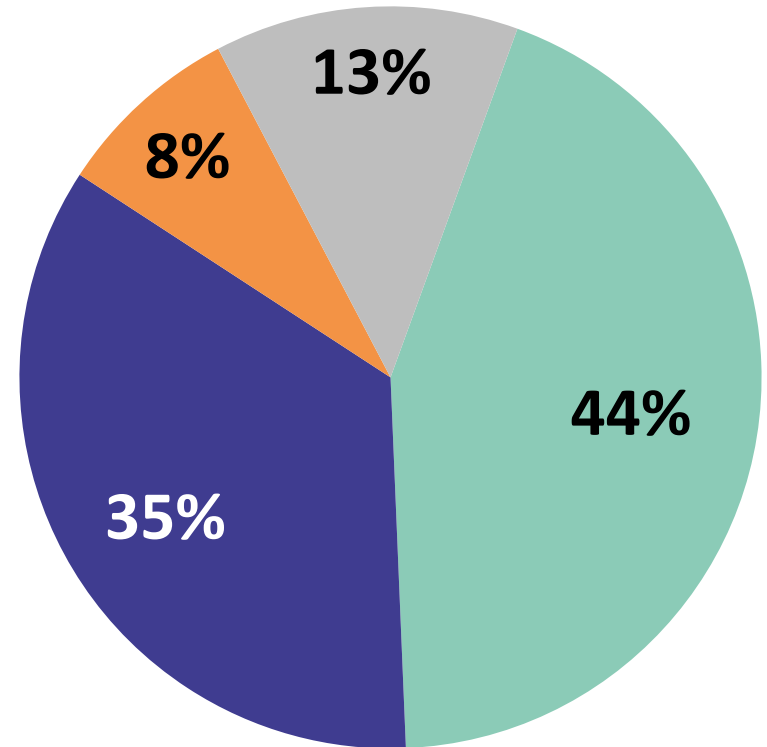


# Key Platinum Autocatalyst Recycling Markets

**2010,  
1.1 Moz**



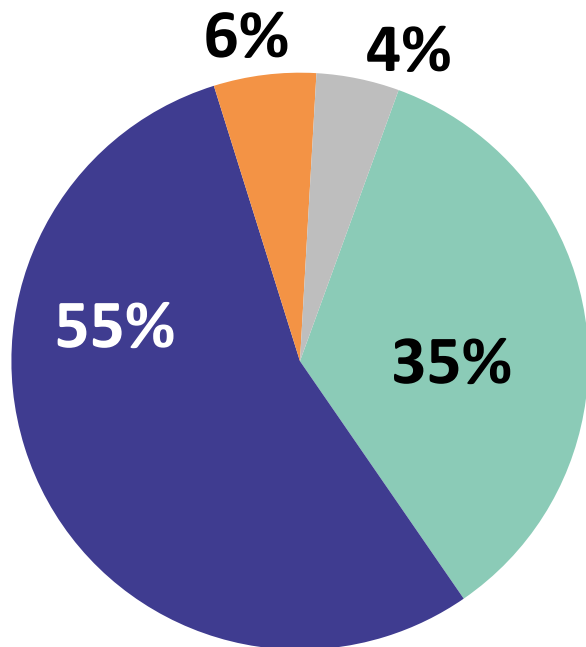
**2021F,  
1.6 Moz**



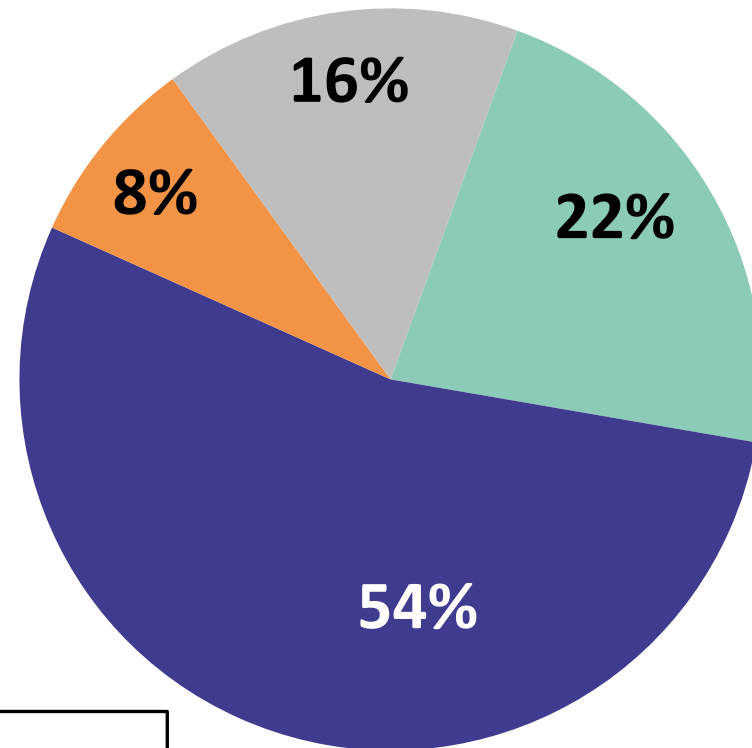
Source: Metals Focus

# Key Palladium Autocatalyst Recycling Markets

**2010,  
1.6 Moz**

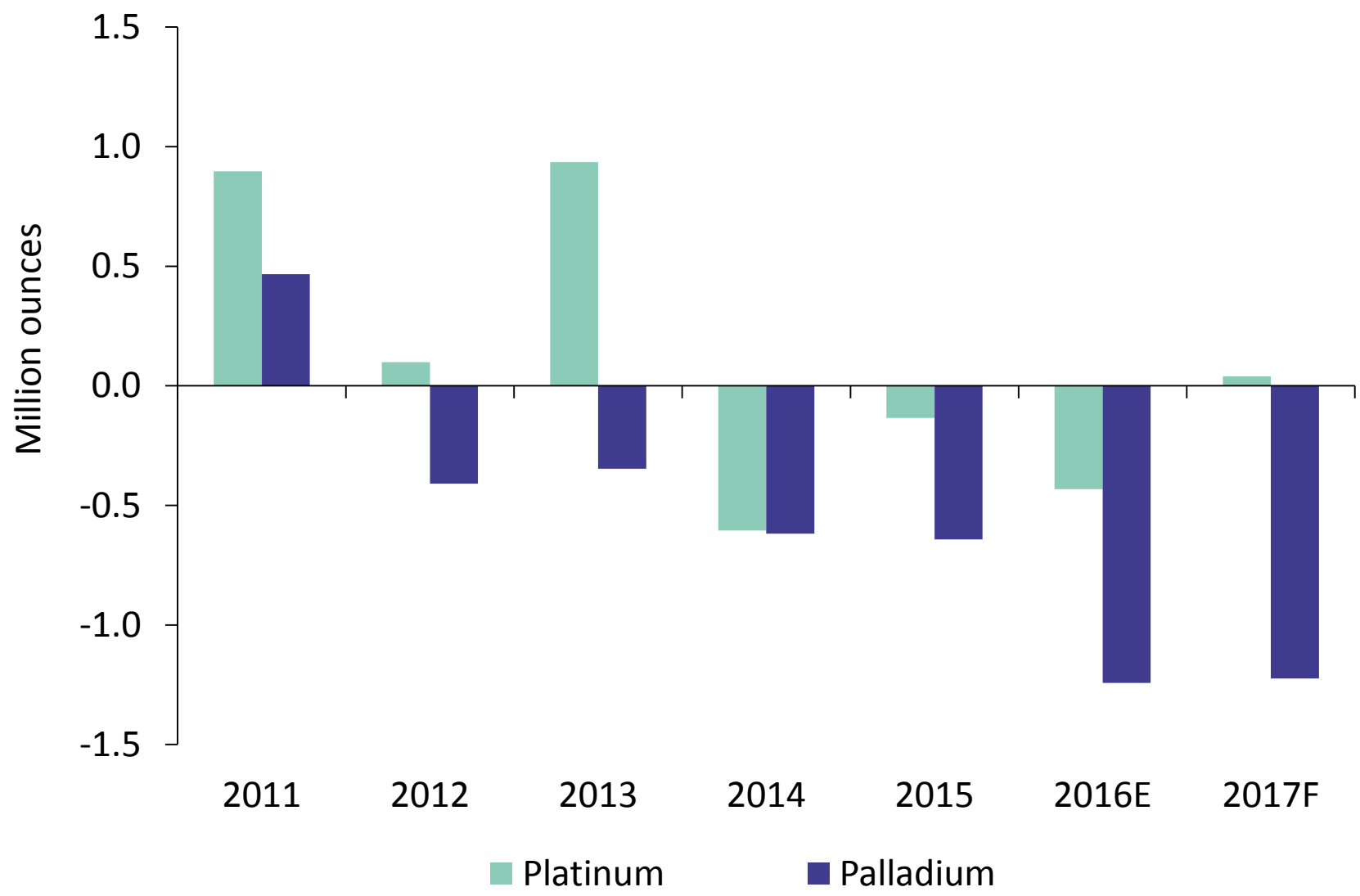


**2021F,  
2.5 Moz**



Source: Metals Focus

# Platinum & Palladium Physical Surplus/Deficits



Source: Metals Focus



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