



# Securing the European fuel supply

*Risks and Mitigation Measures in the Short and Long Term*

**Agnieszka KAŻMIERCZAK**  
Euratom Supply Agency



<https://euratom-supply.ec.europa.eu>

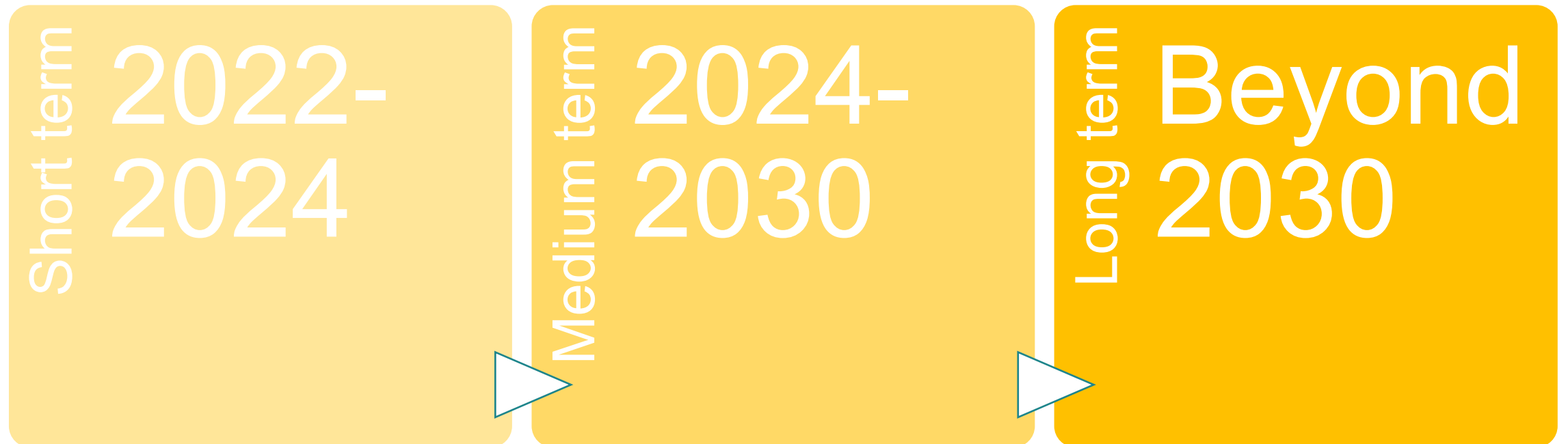


@euratom\_supply

# Securing the European fuel supply

- Short term supply
- Natural uranium market
  - Prices and developments
  - Points to monitor
- Conversion and enrichment services
  - Prices
  - Market forecast and actions needed

# Risk and mitigation perspective



# Short term security of supply

# Short-term supply issues

## **Nuclear power plants fully dependent on supply of Russian fuel (VVER reactors) or fabricated in Russia**

- Can operate on current stock between less than 1 year and 3 years
- Further deliveries are expected
- Utilities have started the diversification process: different paces and objectives

## **Logistical problems**

- Some alternative routes/carriers identified
  - Transport licensing and arrangements in the transit countries on-going
- Payments in some cases difficult

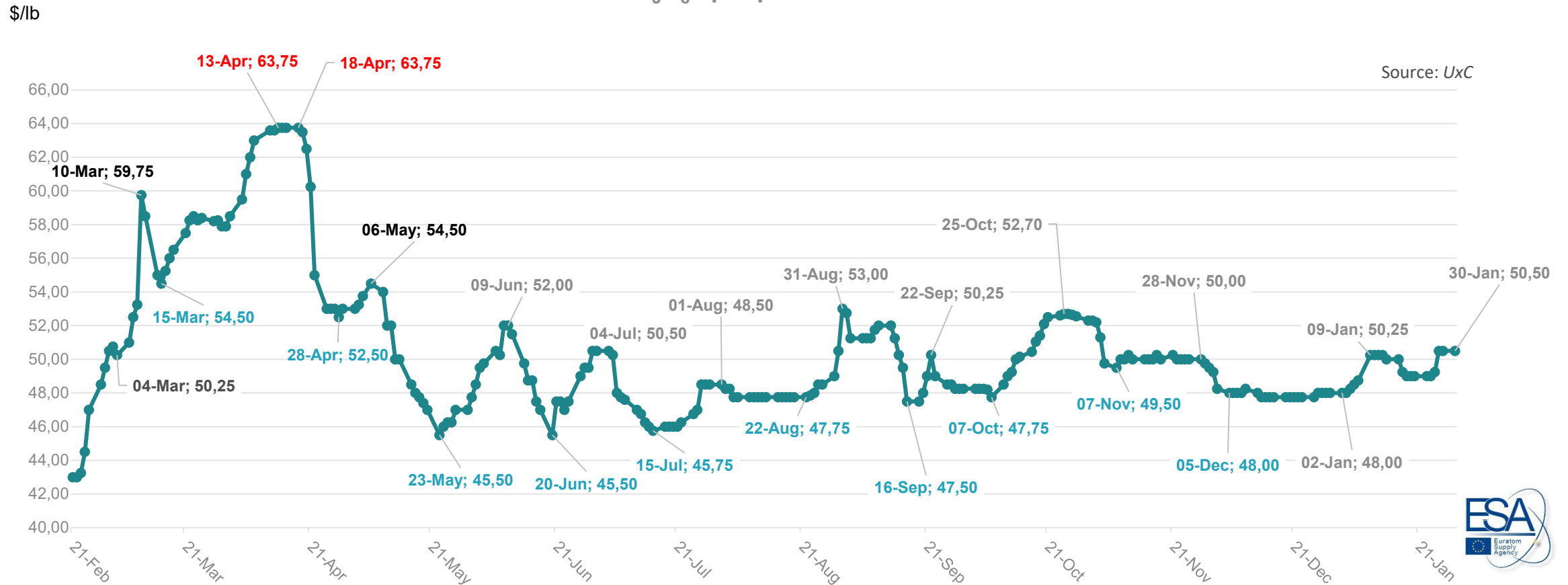
# Uranium

Market developments and points to watch

# Evolution of uranium spot price

- rose by **43%** between 13 and 18 April
- currently around **13,5%** higher than 24 Feb.
- fluctuating between **47 and 53 \$/lb**

U<sub>3</sub>O<sub>8</sub> spot price



# Uranium supply



## AUSTRALIA

- Honeymoon production to resume by the end of 2023
- Westmoreland Uranium Project commences 2022 Drilling Program



## CANADA

- McArthur River mine and Key Lake mill expected back by the end of 2023.



## KAZAKHSTAN

- Kazatomprom ready to ramp up their production
- Working on alternative transport routes (besides Russia and Azerbaijan)



## NAMIBIA

- Restart of Namibia's Langer Heinrich uranium mine in early 2024



# Uranium supply: points to watch

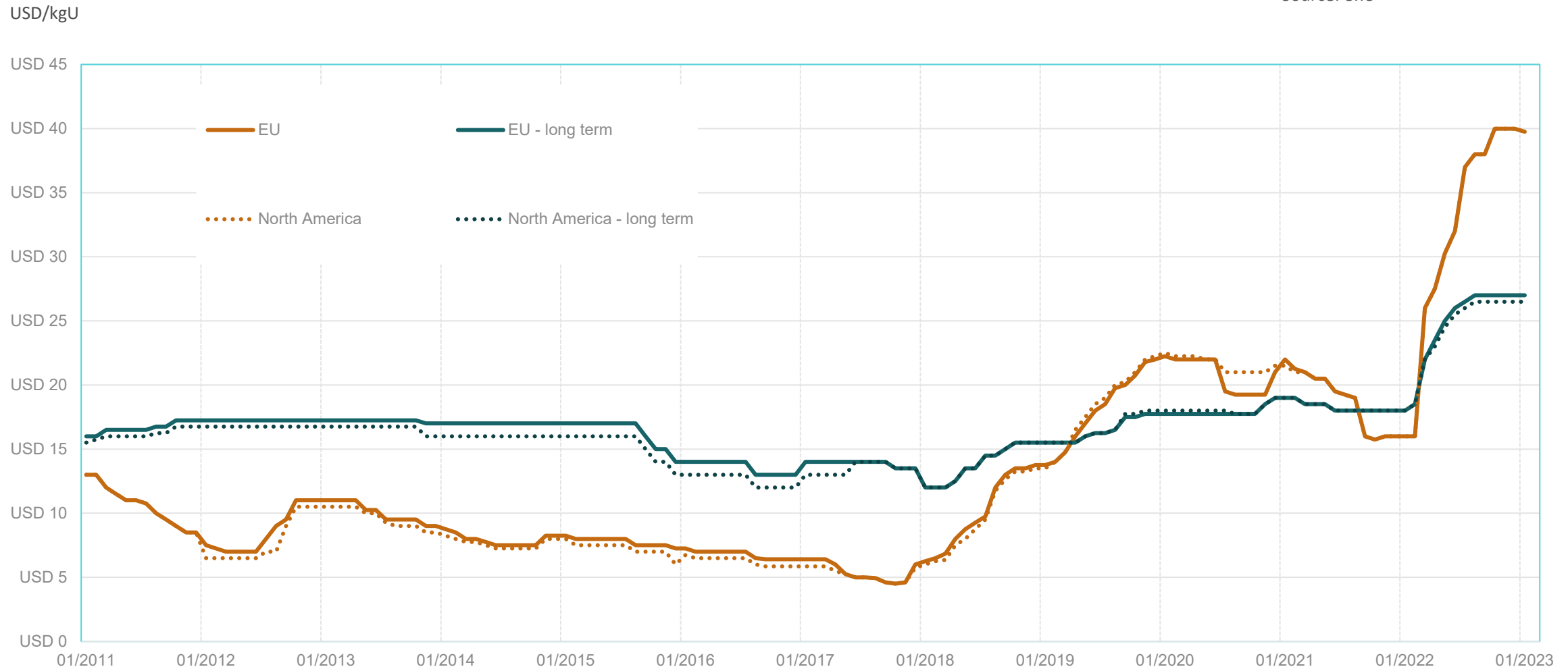
- The situation in countries of Commonwealth of Independent States (CIS) to be monitored
- Several exploration projects set to restart
- ‘Uranium washing’ – Russian uranium sold by third countries or intermediaries

# Conversion and enrichment

Prices

# Conversion prices, 2011-2022

Source: UxC

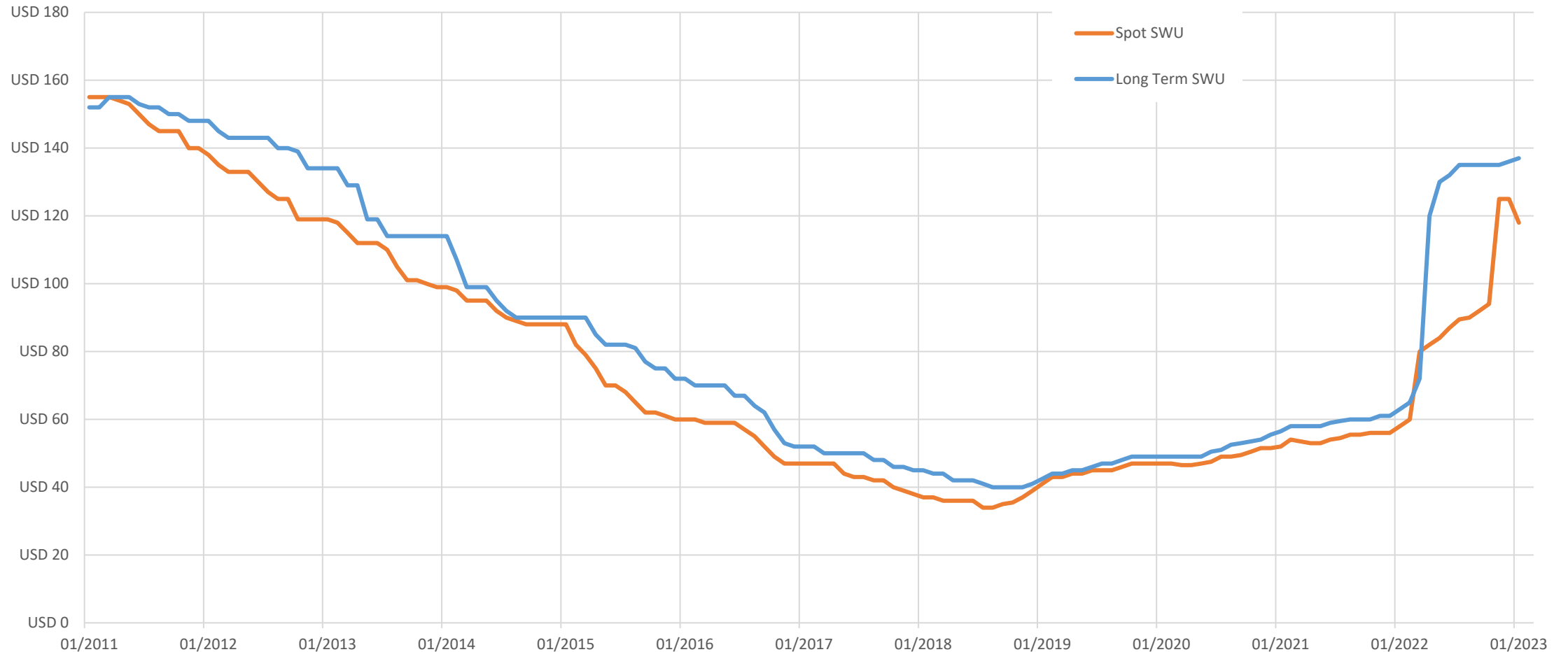


Since 24 February, EU spot and long-term conversion prices have increased by 150% and 46% respectively.

# Enrichment prices, 2011-2022

USD/SWU

Source: UxC



Since 24 February, spot and long-term enrichment prices have increased by 108% and 115% respectively.

To be noticed the different growth trends than conversion.

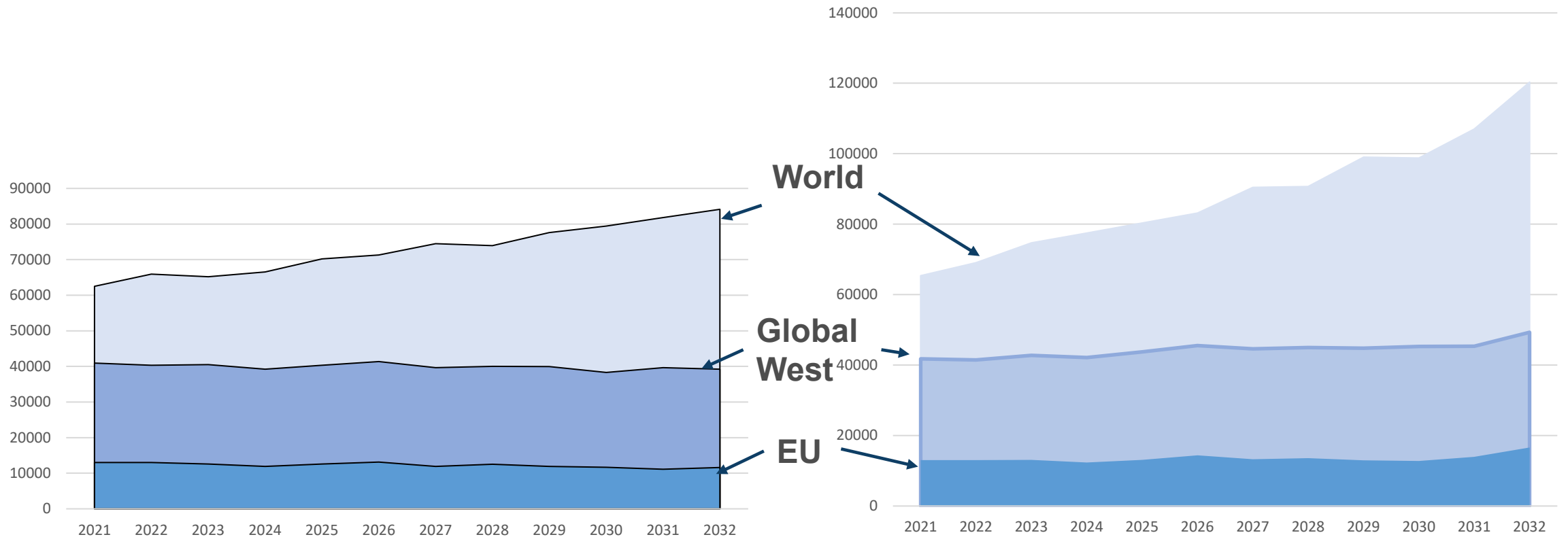
# Conversion and Enrichment

- Significant price increases.
- Hesitance in the market both on side of service providers and users.
- Elements triggering industry investment in increased capacity are absent.
  - Available capacity being contracted by third countries (e.g. US utilities).
  - Industry needs political signals and long term commitments by users

# Conversion

Future requirements and capacity

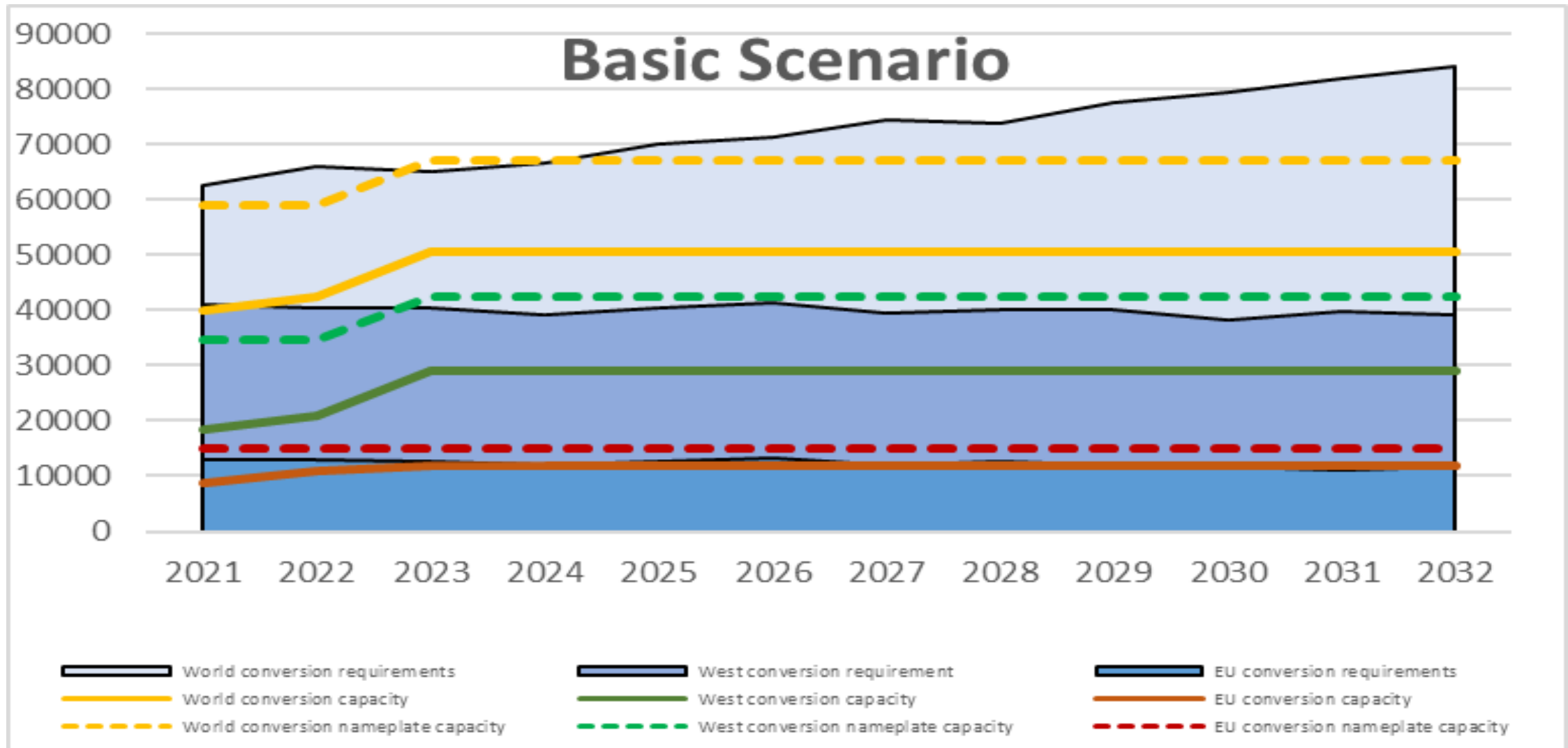
# Conversion requirements



Basic scenario

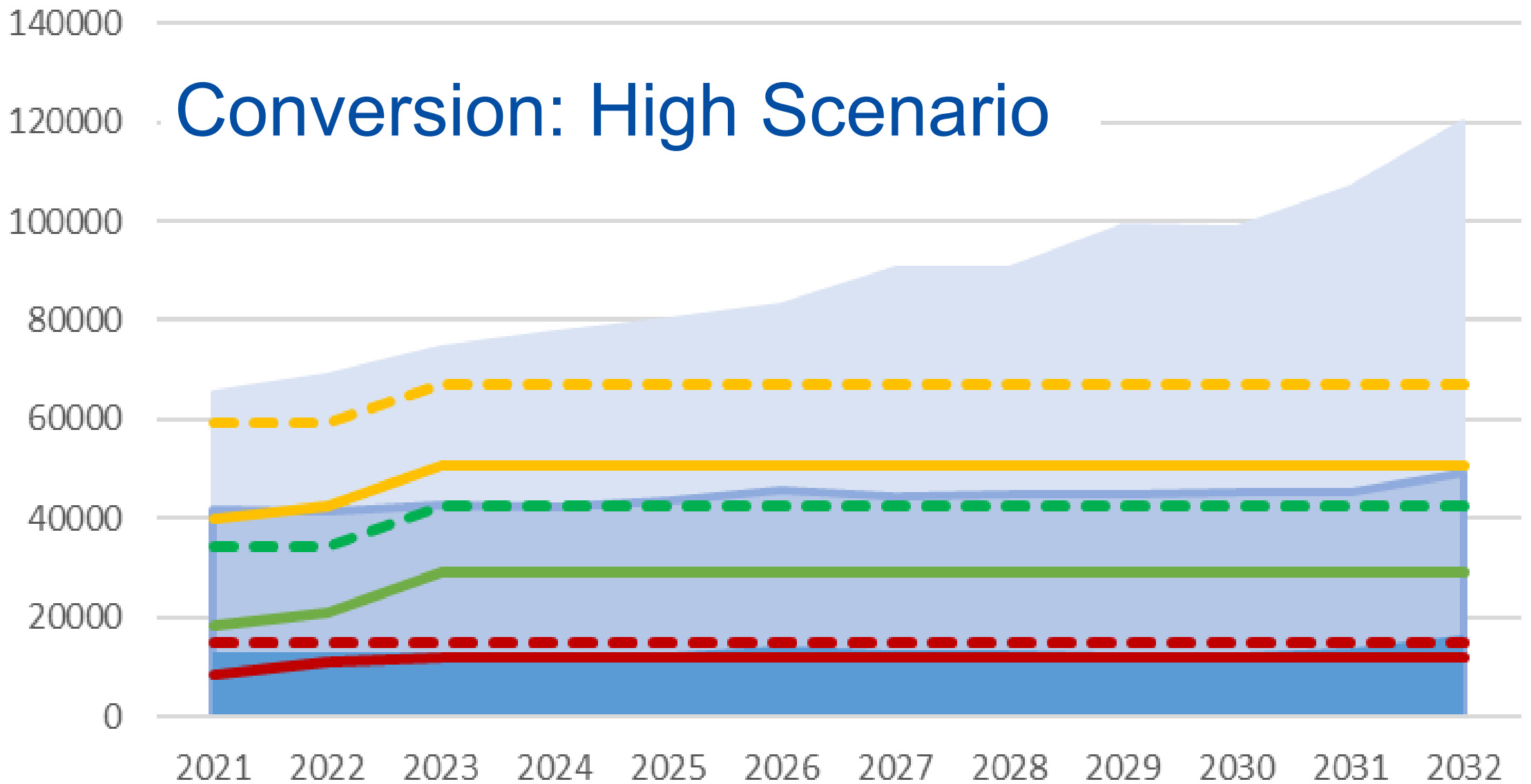
High scenario

# Conversion: Basic Scenario





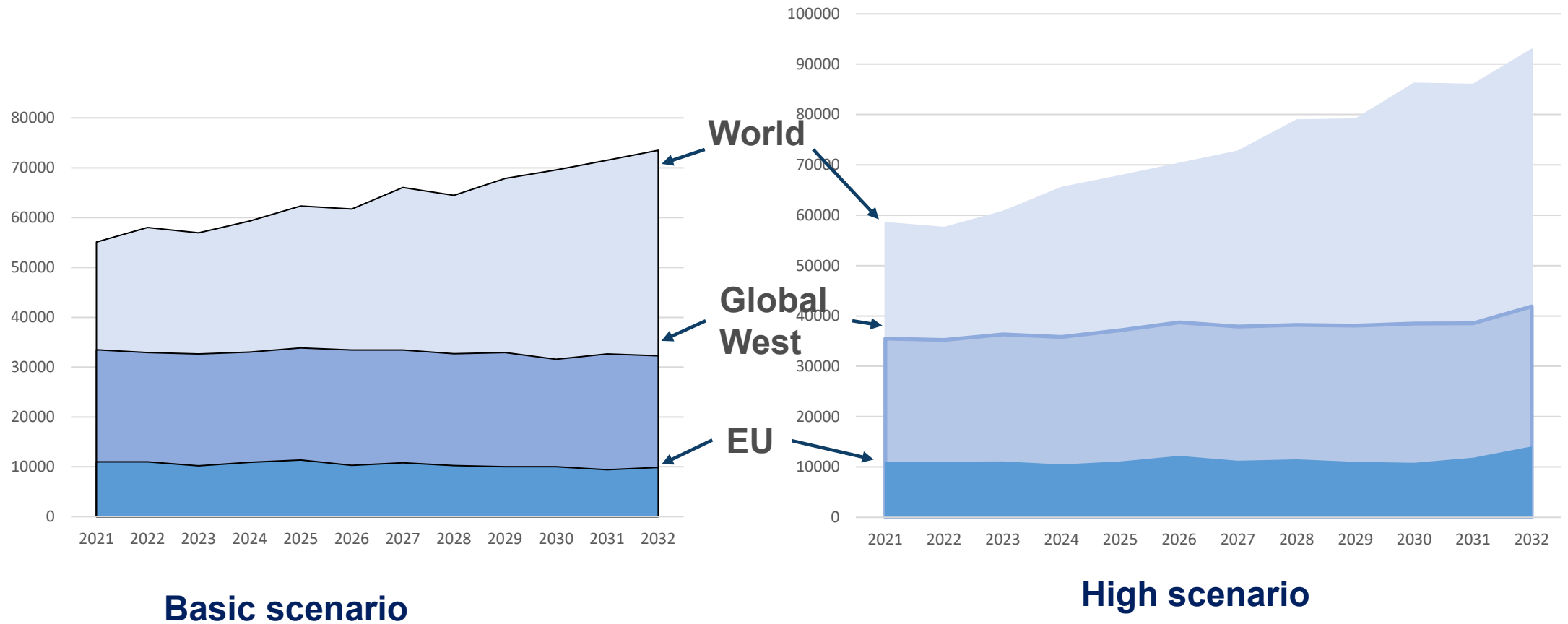
# Conversion: High Scenario



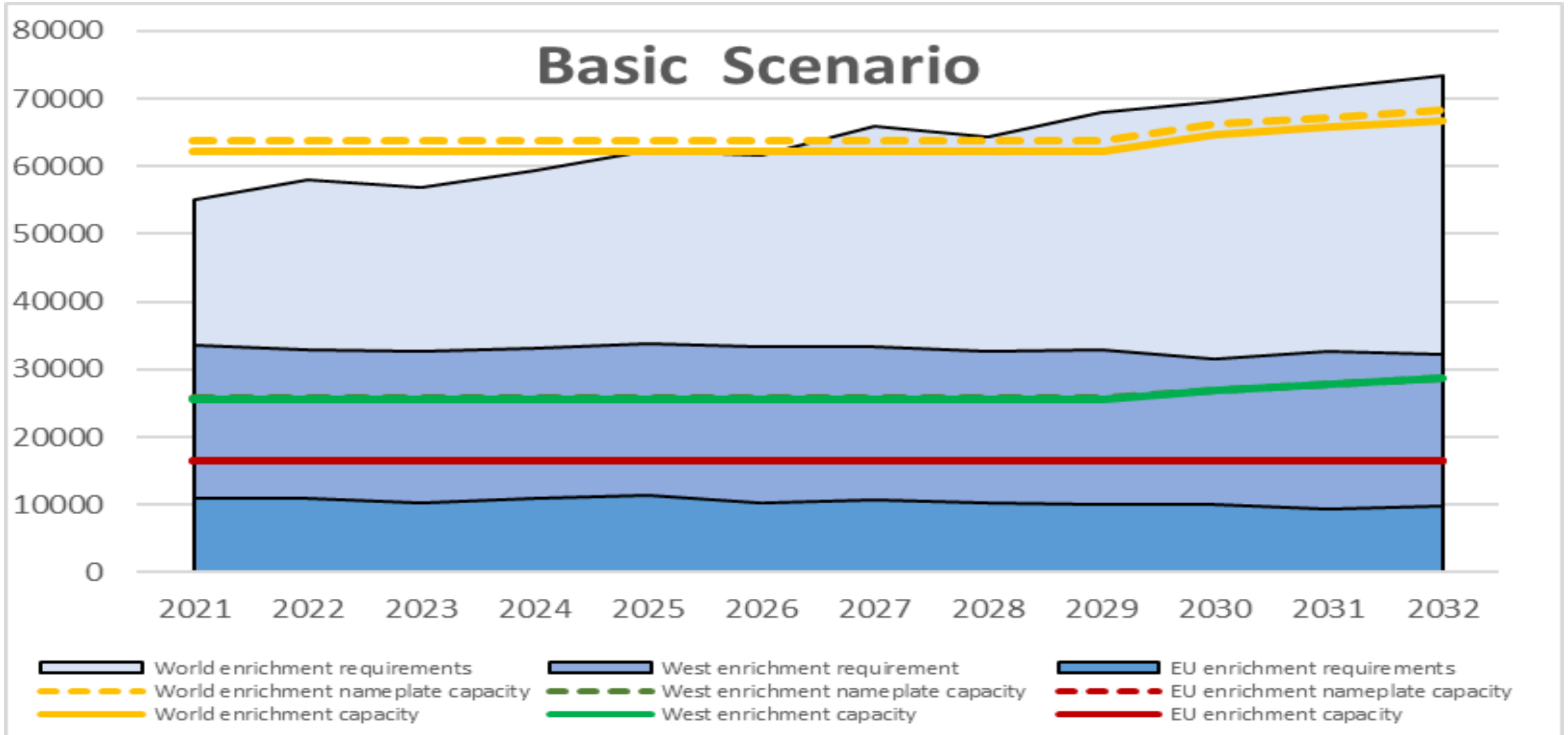
# Enrichment

Future requirements and capacity

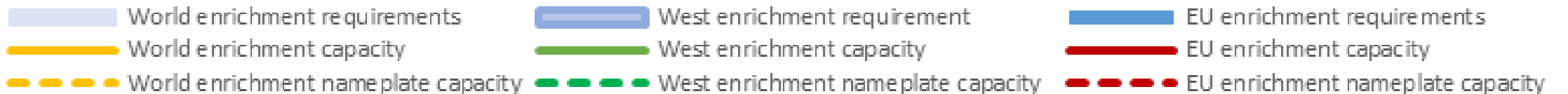
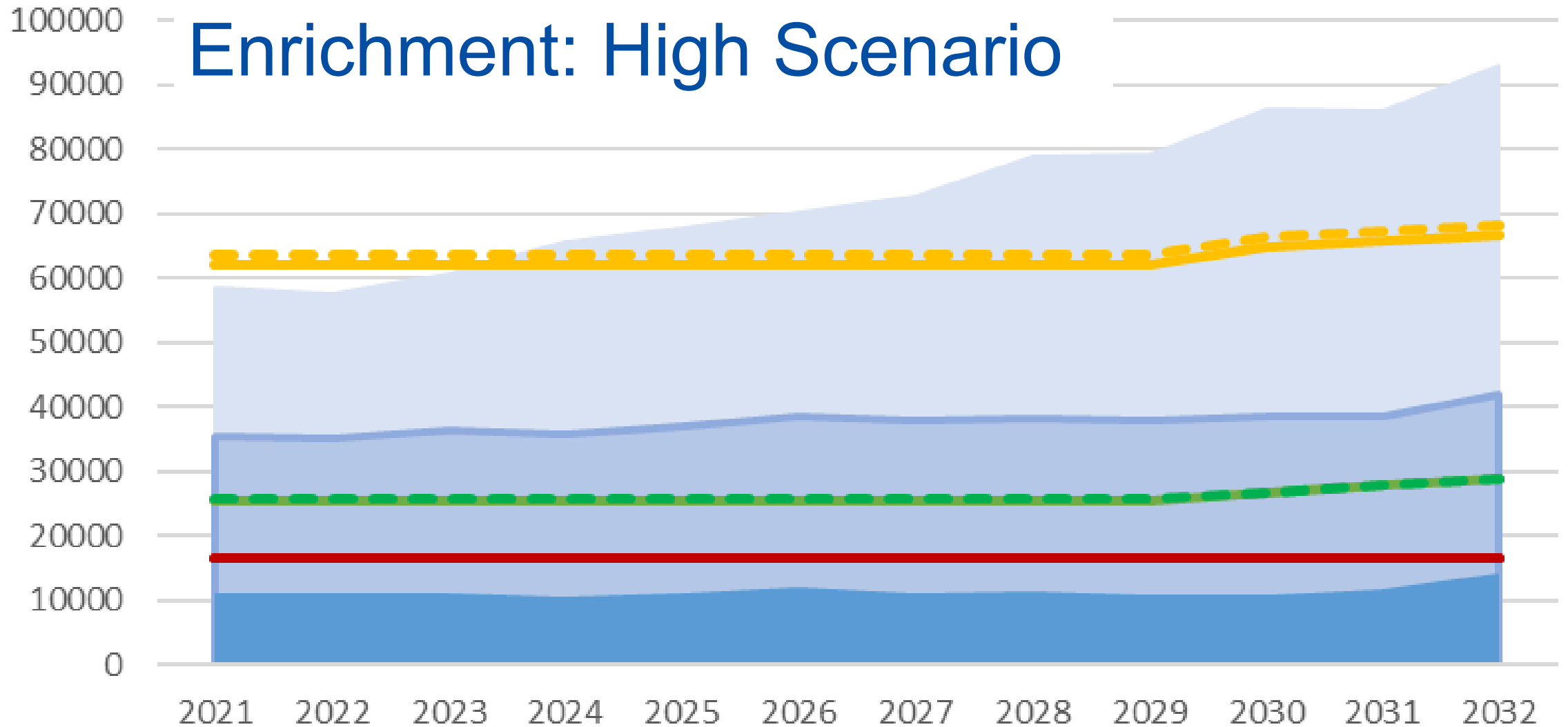
# Enrichment requirements



# Enrichment: Basic Scenario



# Enrichment: High Scenario



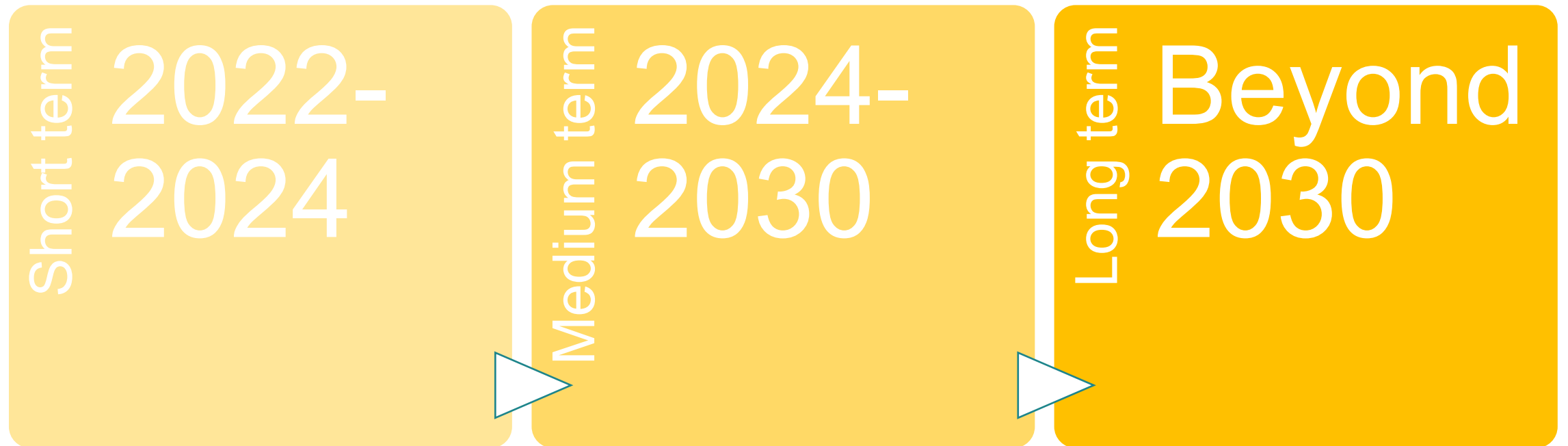
# Conversion and enrichment

Points to consider

# Conversion and enrichment

- Nameplate capacity of **EU plants is sufficient for the EU** to be self-dependent.
  - western industry capacity is contracted also beyond EU
  - nameplate capacity is rarely met due to operational reasons
- West **missing capacity** of 3.500 – 8.000 tSWU.
- Additional conversion and enrichment capacity could take several years.
- Industry investments not viable without some form of **contractual and political commitments for the long term.**
- In absence of long-term contracts and political commitments, enrichers may decide transitionally to compensate by
  - **overfeeding (increasing stress on conversion)**
  - limiting existing inventories.

# Risk and mitigation perspective





# Thank you

ESA-AAE@ec.europa.eu



© European Union 2022

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.

