

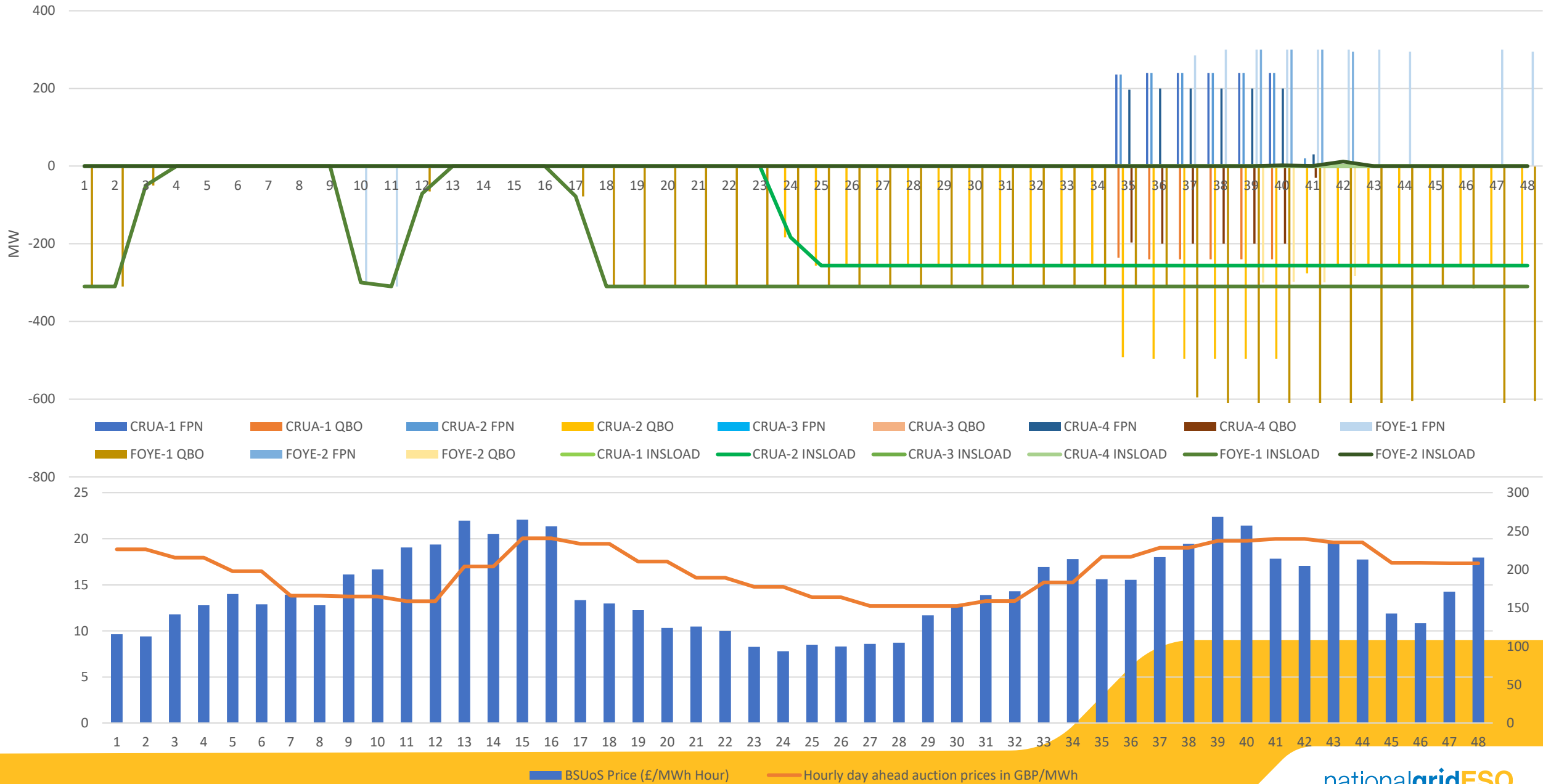


CMP393/4 Analysis on Storage for constraint management

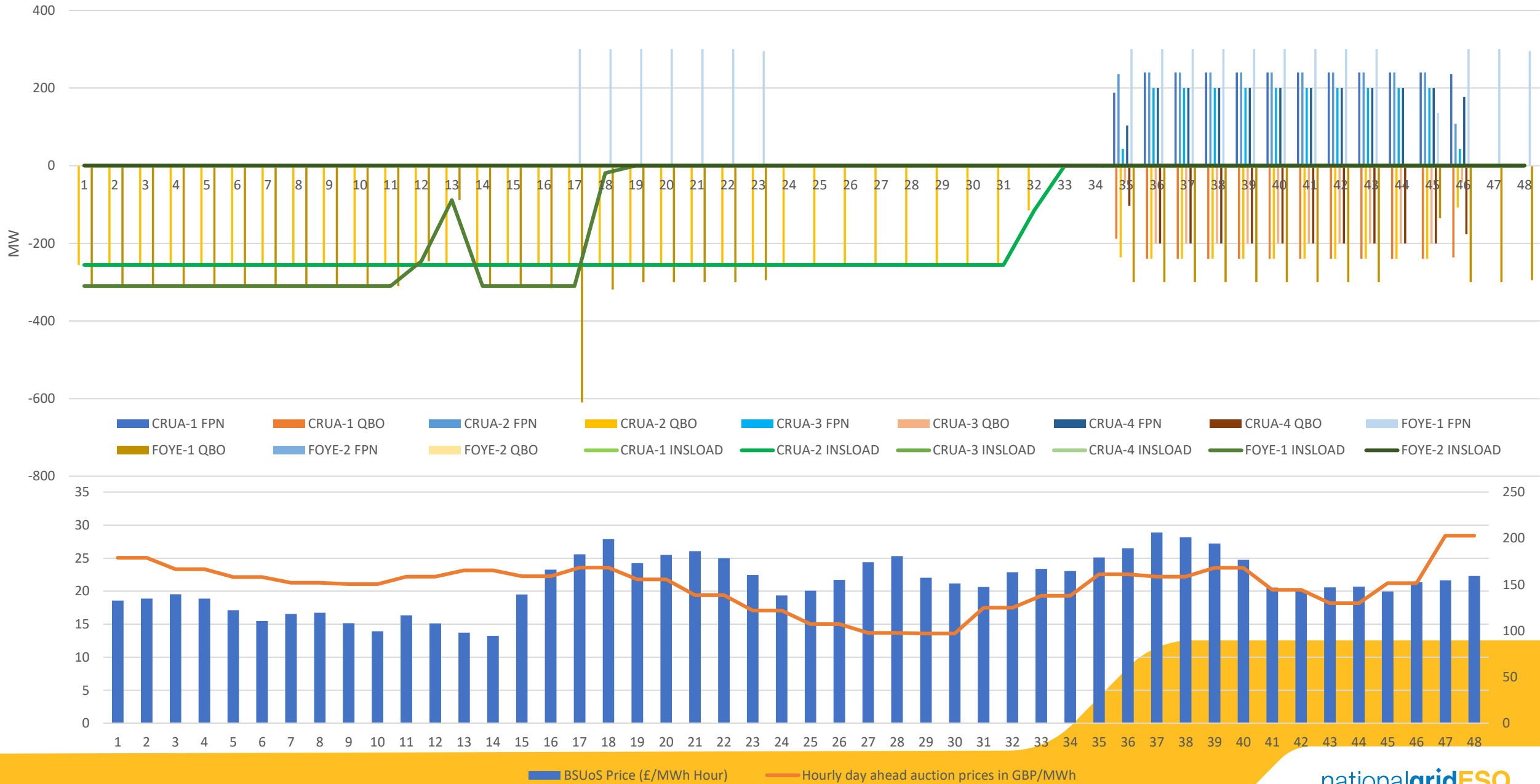
Overview

- Brief: Pumped storage units in Scotland during high and low wind days with and without active constraints
- 17, 18 and 19 June 2022 are days of high wind speeds and active constraints in Scotland
- Data shows INSLOAD (instructed load), FPNs and BOAs for the BMUs at Cruachan and Foyers
- 18 December 2021 is used as an example of a low-wind day with no active constraints
- Instructed Load shown in green lines, FPNs in blue bars and QBOs in yellow/brown bars (QBO = Quantity of BOAs)
- Day-ahead auction prices and BSUoS prices are included
- Data for pumped storage at Dinorwig and Ffestiniog on high and low wind days without constraints included

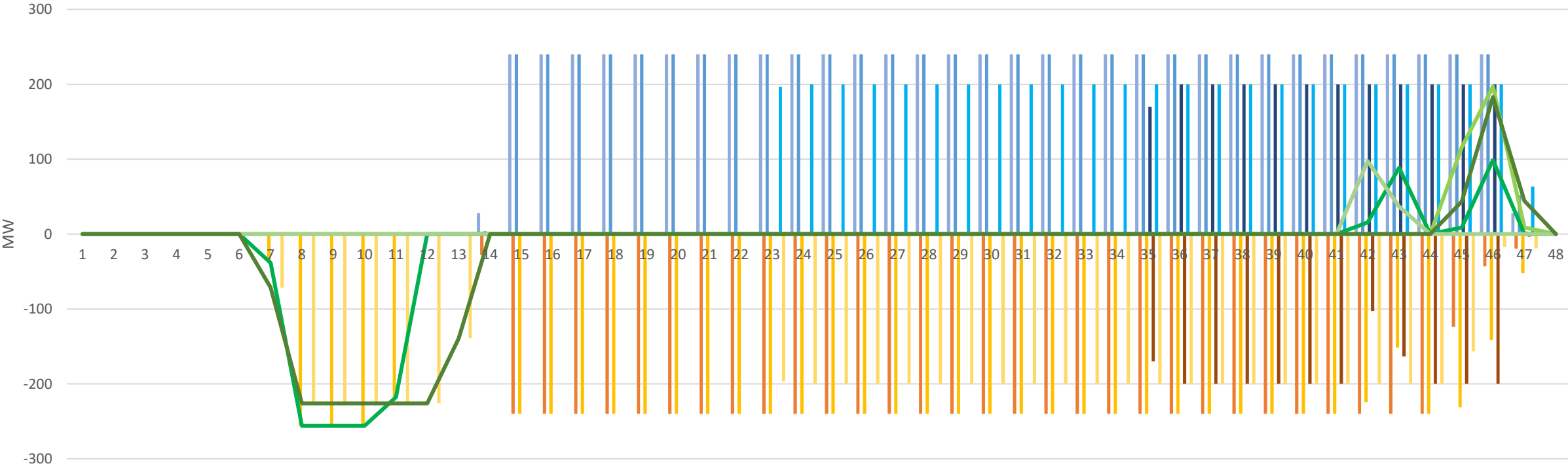
Scottish Pumped Storage - 17 June 2022



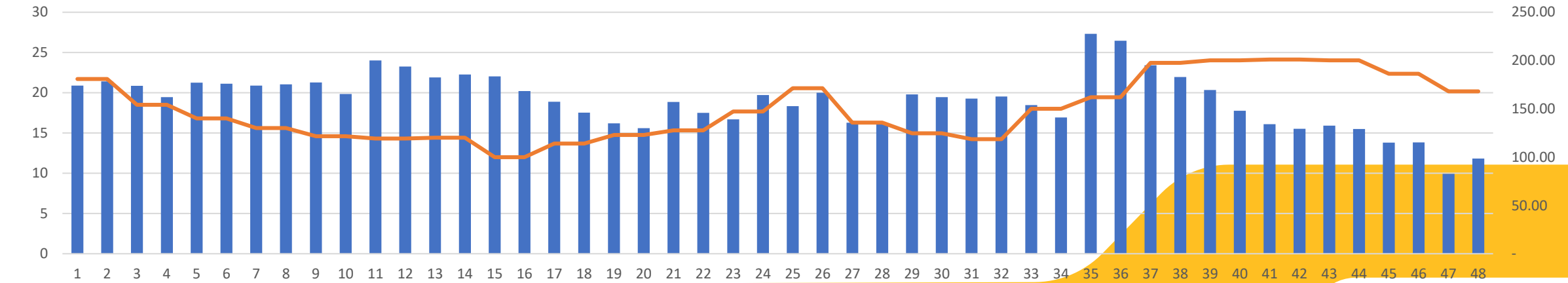
Scottish Pumped Storage - 18 June 2022



Cruachan Pumped Storage - 19 June 2022

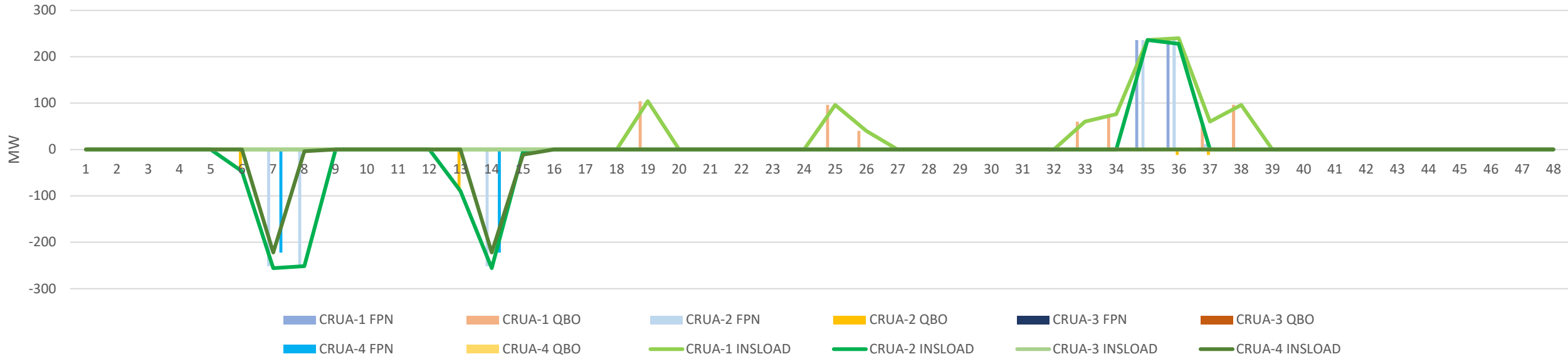


- CRUA-1 FPN
- CRUA-1 QBO
- CRUA-2 FPN
- CRUA-2 QBO
- CRUA-3 FPN
- CRUA-3 QBO
- CRUA-4 FPN
- CRUA-4 QBO
- CRUA-1 INSLOAD
- CRUA-2 INSLOAD
- CRUA-3 INSLOAD
- CRUA-4 INSLOAD

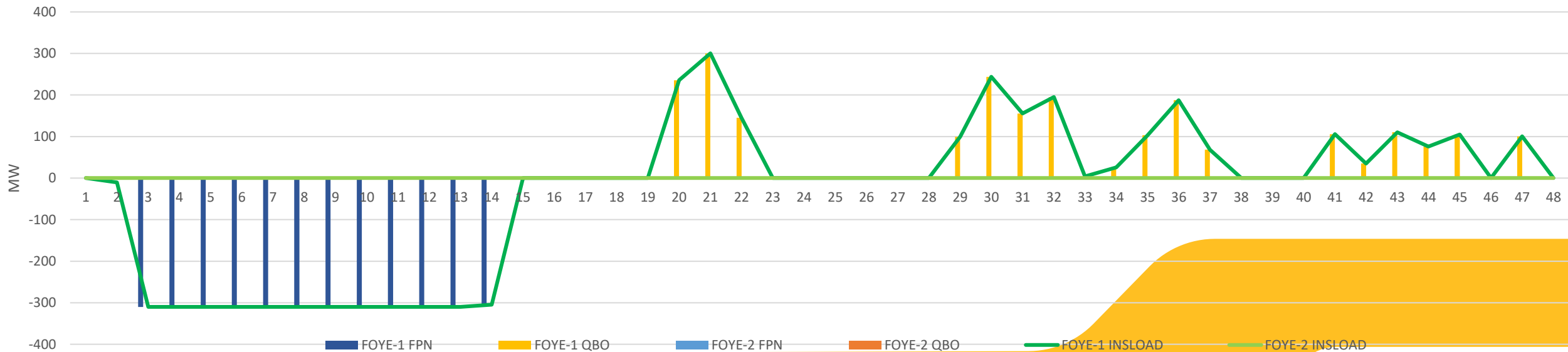


BSUs Price £/MWh Hour Hourly day ahead auction prices in GBP/MWh

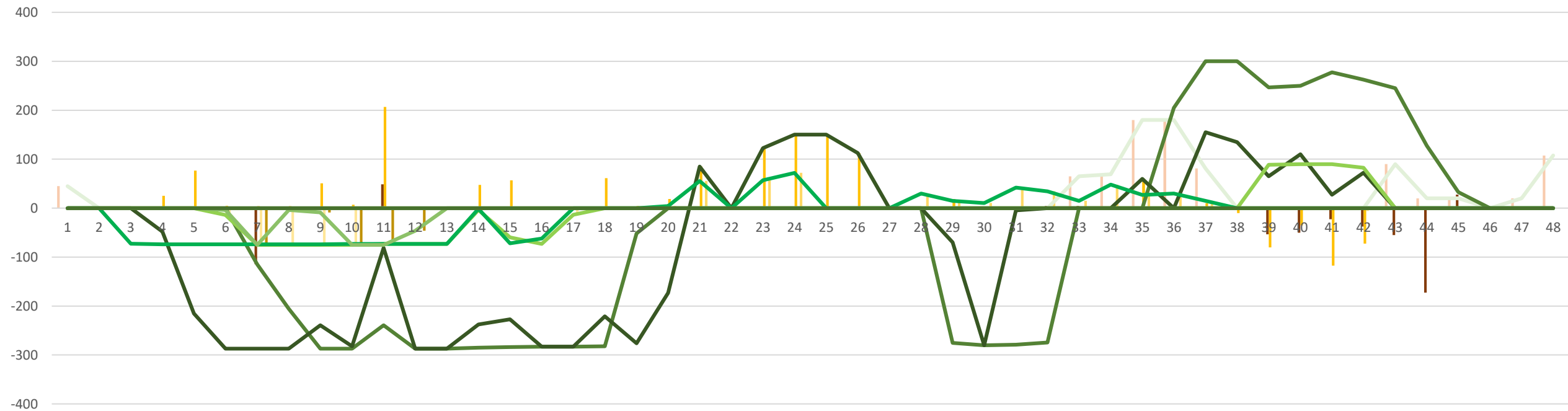
18 December 2021 – Low Wind, No Constraints Active Cruachan Pumped Storage



Foyers Pumped Storage

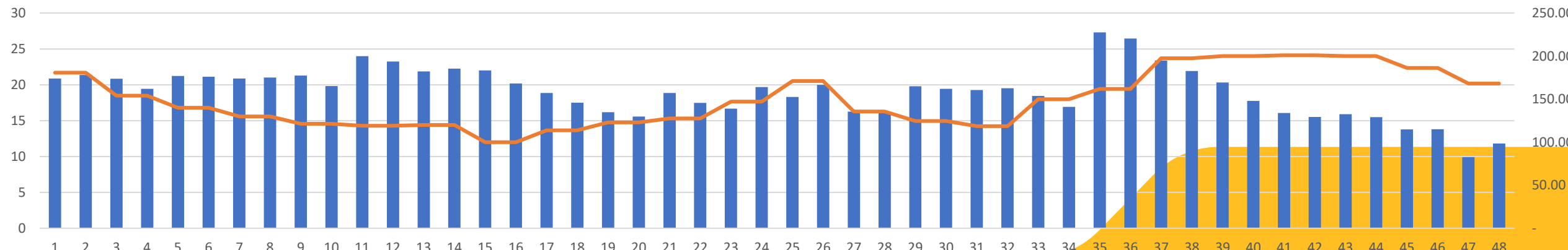


Welsh Pumped Storage - 19 June 2022



- DINO-1 QBO
- DINO-2 QBO
- DINO-3 QBO
- DINO-4 QBO
- DINO-5 QBO
- DINO-6 QBO
- FFES-1 QBO
- FFES-2 QBO
- FFES-3 QBO
- FFES-4 QBO

19 June 2022 Prices



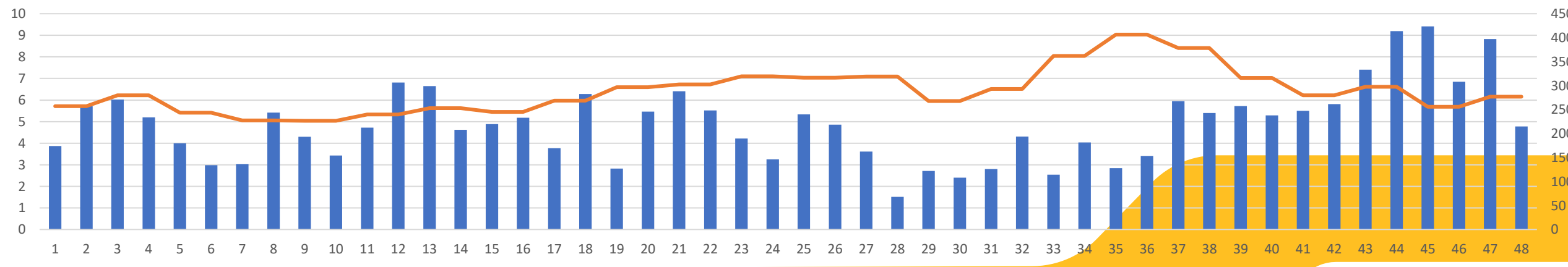
■ BSOs Price £/MWh Hour — Hourly day ahead auction prices in GBP/MWh

Welsh Pumped Storage - 18 December 2021



- DINO-1 QBO
- DINO-2 QBO
- DINO-3 QBO
- DINO-4 QBO
- DINO-5 QBO
- DINO-6 QBO
- FFES-1 QBO
- FFES-2 QBO
- FFES-3 QBO
- FFES-4 QBO
- DINO-1
- DINO-2
- DINO-3
- DINO-4
- DINO-5
- DINO-6
- FFES-1
- FFES-2
- FFES-3
- FFES-4

18 December 2021 Prices



- BSUoS Price £/MWh Hour
- Hourly day ahead auction prices in GBP/MWh