

COVID-19 countermeasures' impacts on electricity demand and wholesale prices (data in major countries) Updated version (adding June data)

The Institute of Energy Economics, Japan

Junichi Ogasawara, Senior Research Fellow, Manager, Assistant Director, Electric Power Industry & New and Renewable Energy Unit

Hiroko Nakamura, Senior Research Fellow, New Renewable Energy Group, Electric Power Industry & New and Renewable Energy Unit

Masato Ishikawa, Research Fellow, Electric Power Group, Electric Power Industry & New and Renewable Energy Unit

Yasuhide Arai, Senior Analyst, Global Energy Group 1, Strategy Research Unit

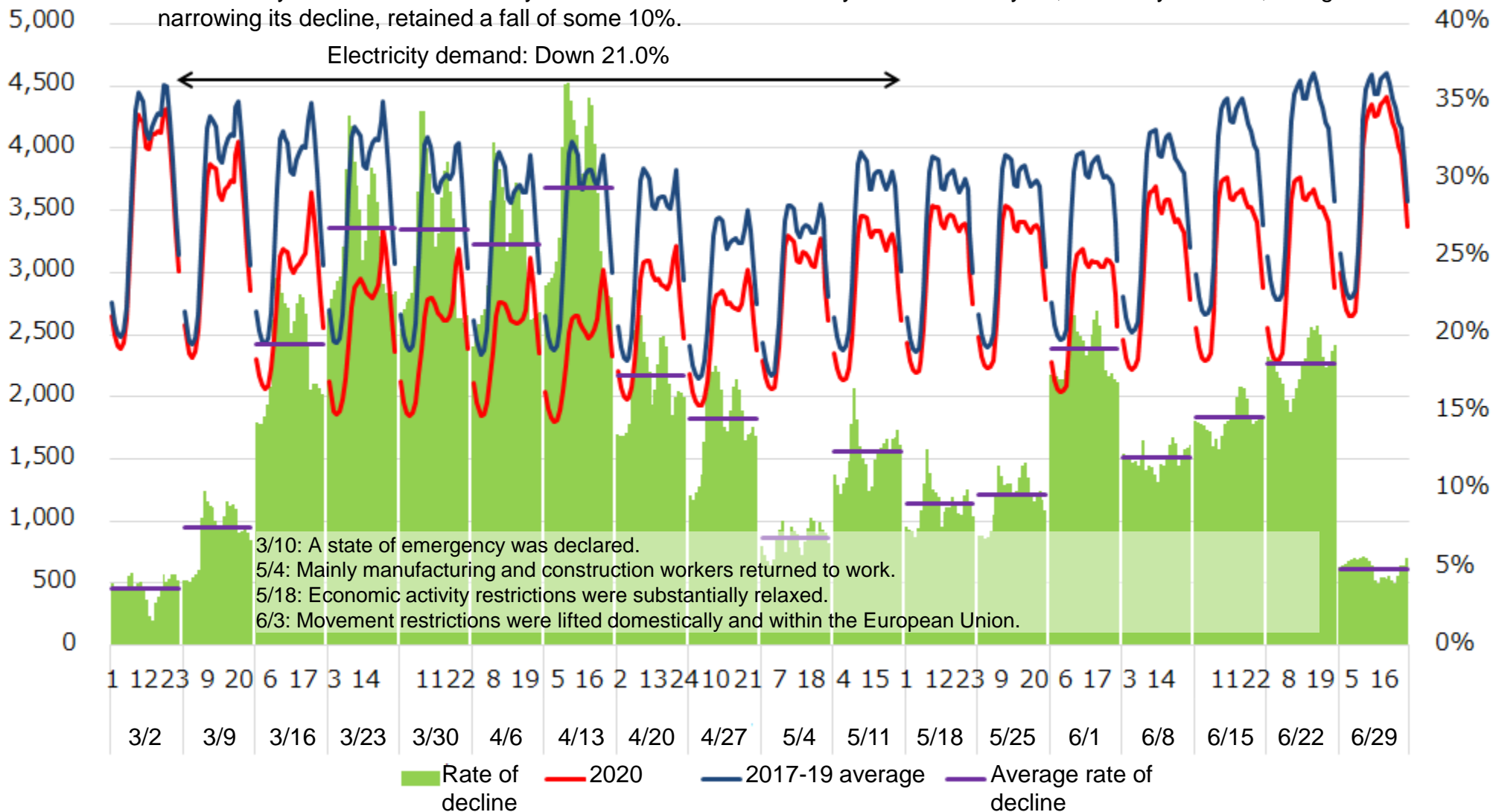
Seiya Endo, Economist, Econometric and Statistical Analysis Group, Energy Data and Modelling Center

Introduction

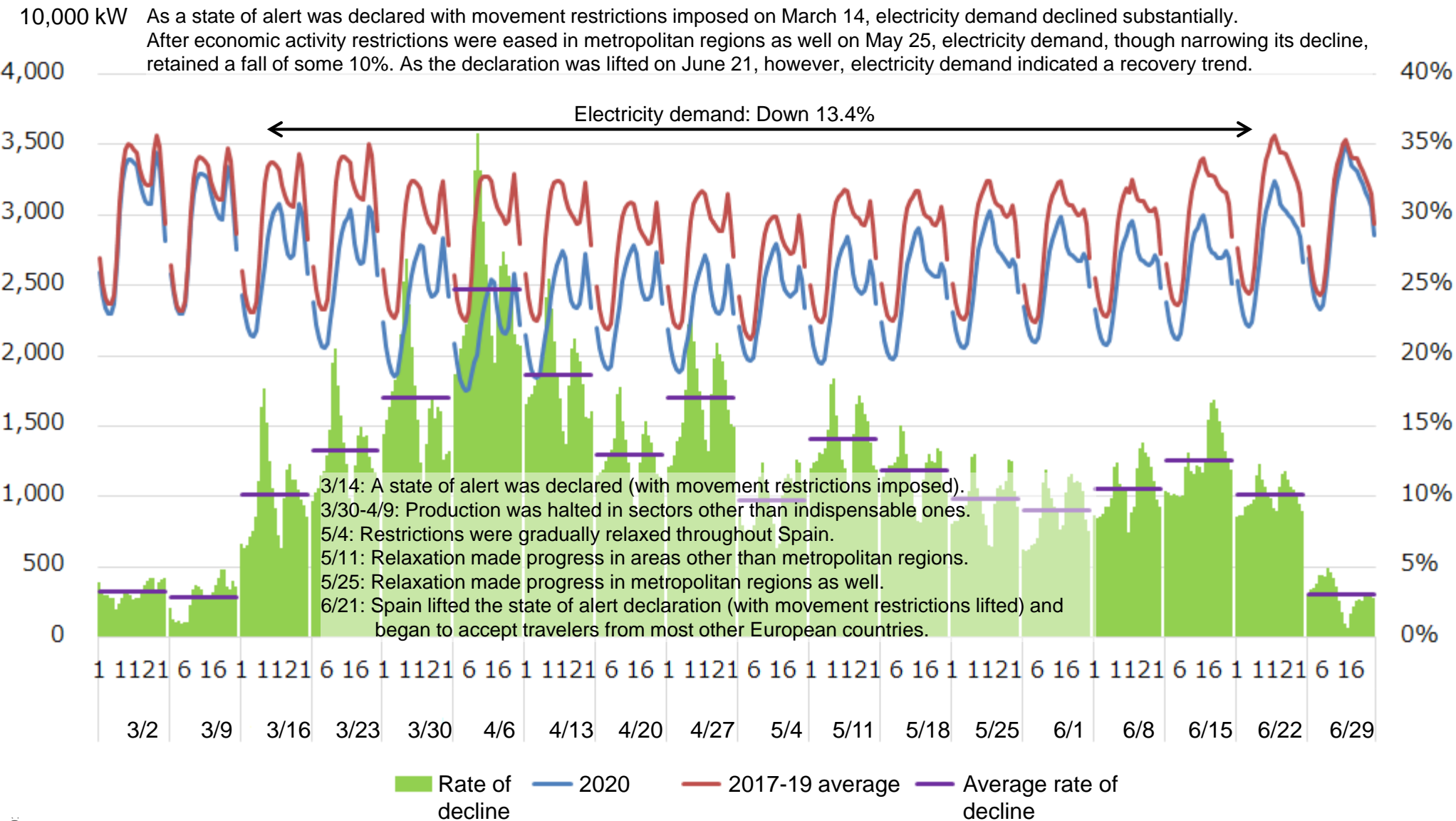
- Under the COVID-19 pandemic, measures have been taken to restrict economic activities throughout the world. While electricity demand has been described as one economic indicator, the pandemic's impacts on electricity demand might have differed by country or region.
- To review the pandemic's impact on weekday electric load curves in major countries or regions from March to June, we have computed each week's Monday-Friday average electric load for comparison with the average for the past three years (2017-2019).
- In line with primary energy price and electricity demand declines, spot wholesale electricity prices have stagnated in many countries and regions. We have computed monthly average unit prices from March to June for comparison with those for the past three years.
- Our research targets are Italy, Spain, France, the United Kingdom, the Netherlands, Belgium, Germany, Sweden's capital region, Norway's capital region, the New York Independent System Operator (ISO), New York City, the California ISO, PJM (Mid-Atlantic region), Australia's New South Wales State, the Tokyo Electric Power area, and the Kansai Electric Power area.
- ✧ The first weekday is assumed as February 27 for 2017, February 26 for 2018 and February 25 for 2019. Although some weekdays are national holidays in some countries or regions, such holidays are deemed weekdays for our computation.

Italy

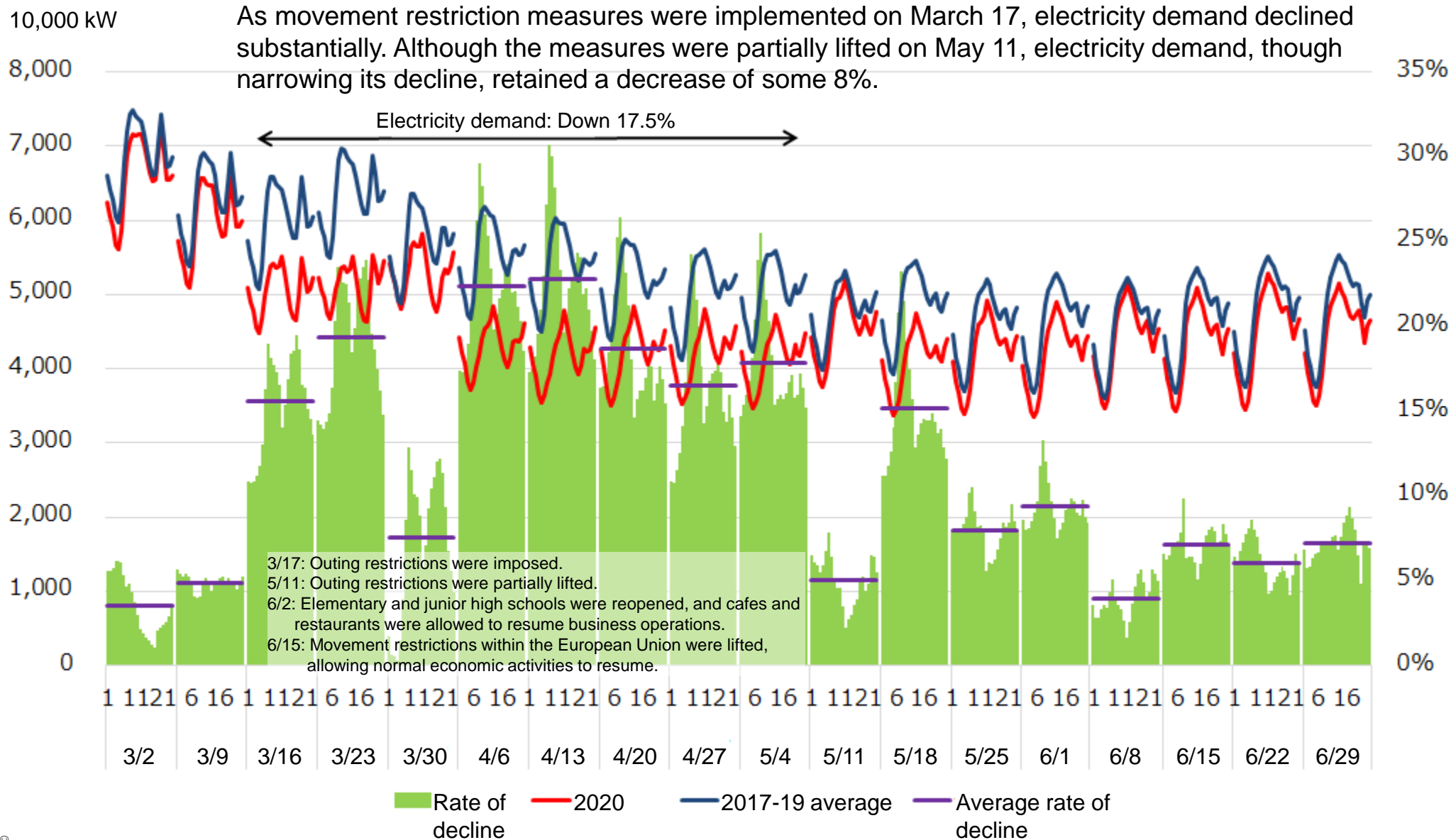
10,000 kW As a state of emergency was declared with outing restrictions imposed on March 10, electricity demand decreased substantially. After economic activity restrictions were substantially relaxed on May 18, electricity demand, though narrowing its decline, retained a fall of some 10%.



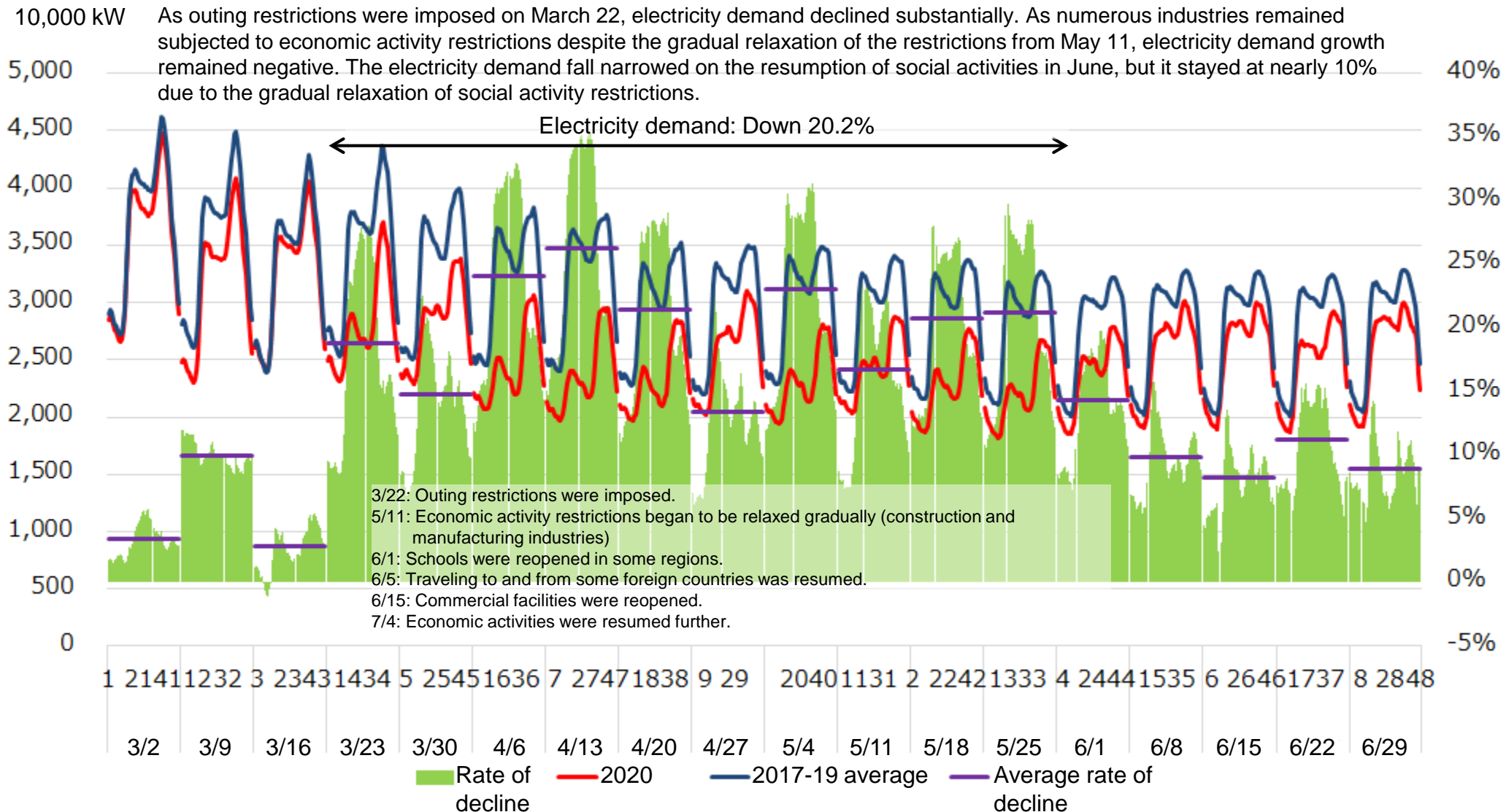
Spain



As movement restriction measures were implemented on March 17, electricity demand declined substantially. Although the measures were partially lifted on May 11, electricity demand, though narrowing its decline, retained a decrease of some 8%.

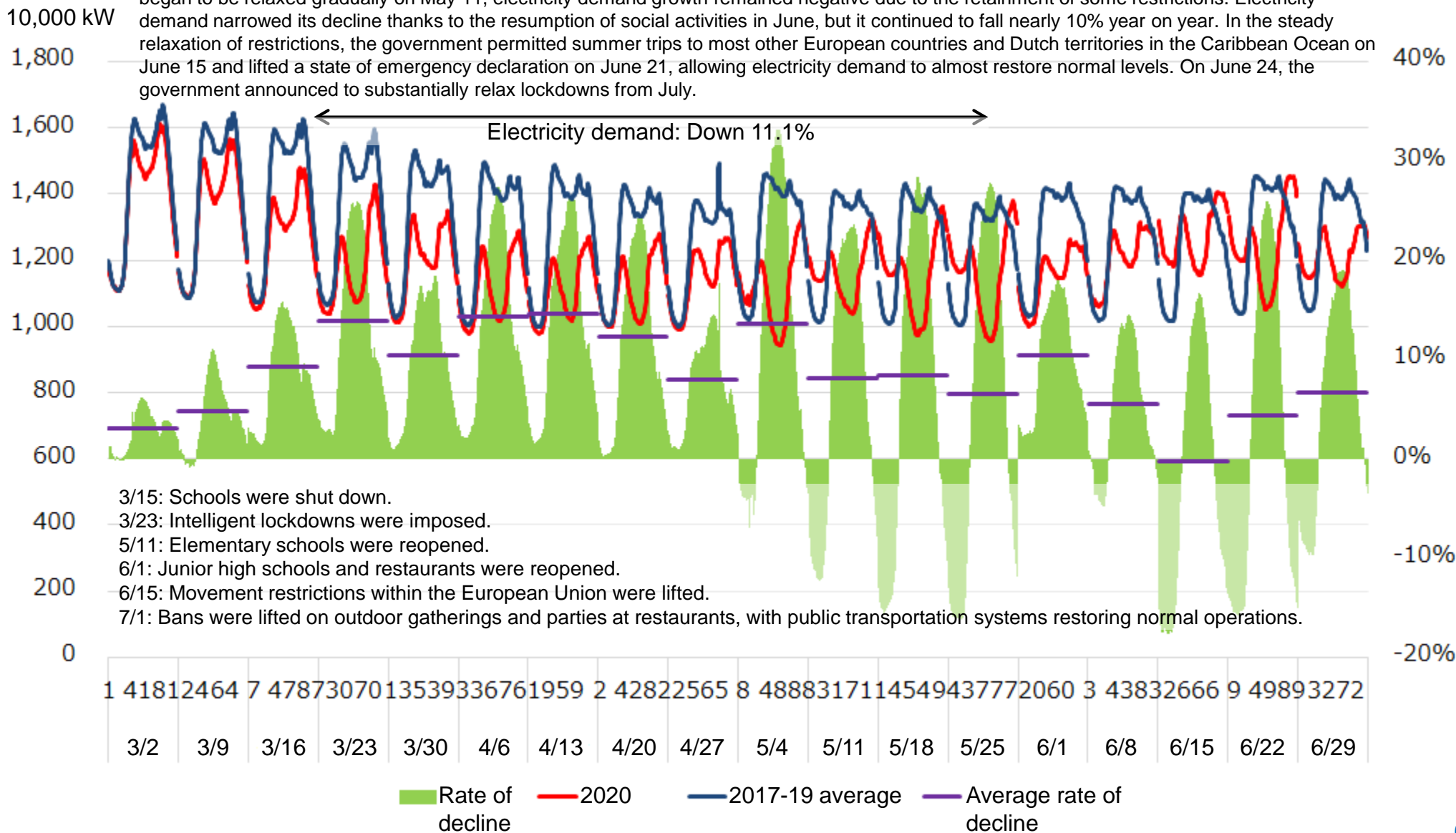


U.K.



"Historic Demand Data"

As lockdowns and outing restrictions were imposed on March 15, electricity demand declined substantially. Although economic activity restrictions began to be relaxed gradually on May 11, electricity demand growth remained negative due to the retainment of some restrictions. Electricity demand narrowed its decline thanks to the resumption of social activities in June, but it continued to fall nearly 10% year on year. In the steady relaxation of restrictions, the government permitted summer trips to most other European countries and Dutch territories in the Caribbean Ocean on June 15 and lifted a state of emergency declaration on June 21, allowing electricity demand to almost restore normal levels. On June 24, the government announced to substantially relax lockdowns from July.



10,000 kW

As outing restrictions were imposed on March 14, electricity demand declined substantially. Although economic activity restrictions were gradually relaxed from May 11, electricity demand remained lower than a year earlier due to the retainment of some restrictions. Although the electricity demand fall narrowed thanks to the resumption of social activities in June, demand remained nearly 10% lower than a year earlier. In the steady relaxation of restrictions, the government announced a transition to Phase 4 of outing restriction relaxation on June 24 and plans on June 29 to allow traveling to other European countries excluding some North European countries, Malta and Iceland from July.

1,400

25%

1,200

20%

1,000

15%

800

10%

600

5%

400

0%

200

0

Electricity demand: Down 12.9%

3/12: Outing restrictions were imposed.
 5/4: Mask wearing and other requirements were imposed.
 5/11: Shops subject to restrictions were reopened.
 5/18: Schools were reopened on condition of up to 10 students per room.
 6/8: Outing restrictions were relaxed.
 6/24: Outing restrictions were relaxed further.
 7/1: Outing restrictions were relaxed considerably.

1 40792160 2 41802261 3 42812362 4 43822463 5 44832564 6 45842665 7 46852766 8 47862867 9 48872968

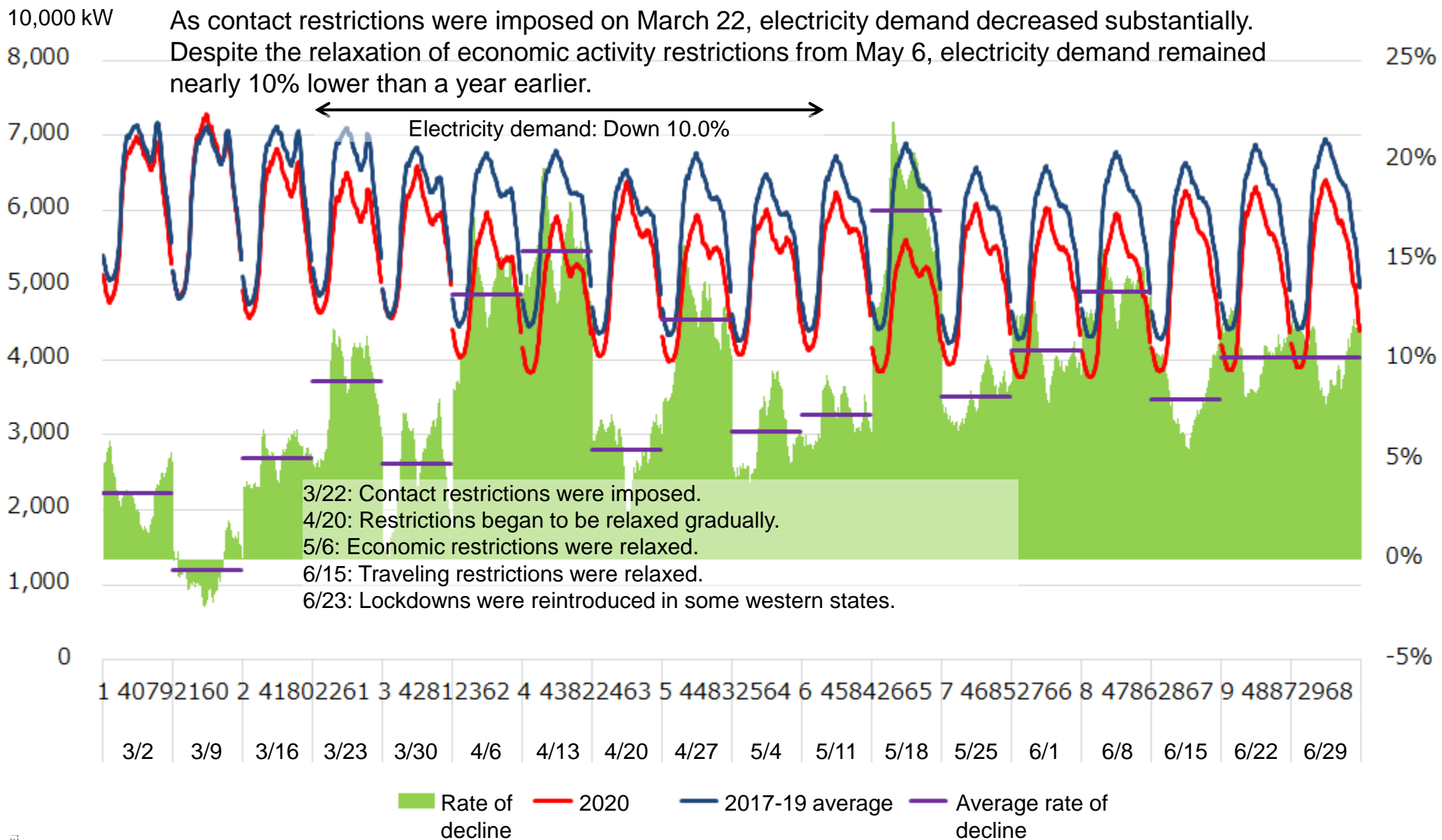
3/2 3/9 3/16 3/23 3/30 4/6 4/13 4/20 4/27 5/4 5/11 5/18 5/25 6/1 6/8 6/15 6/22 6/29

Rate of
decline

2020

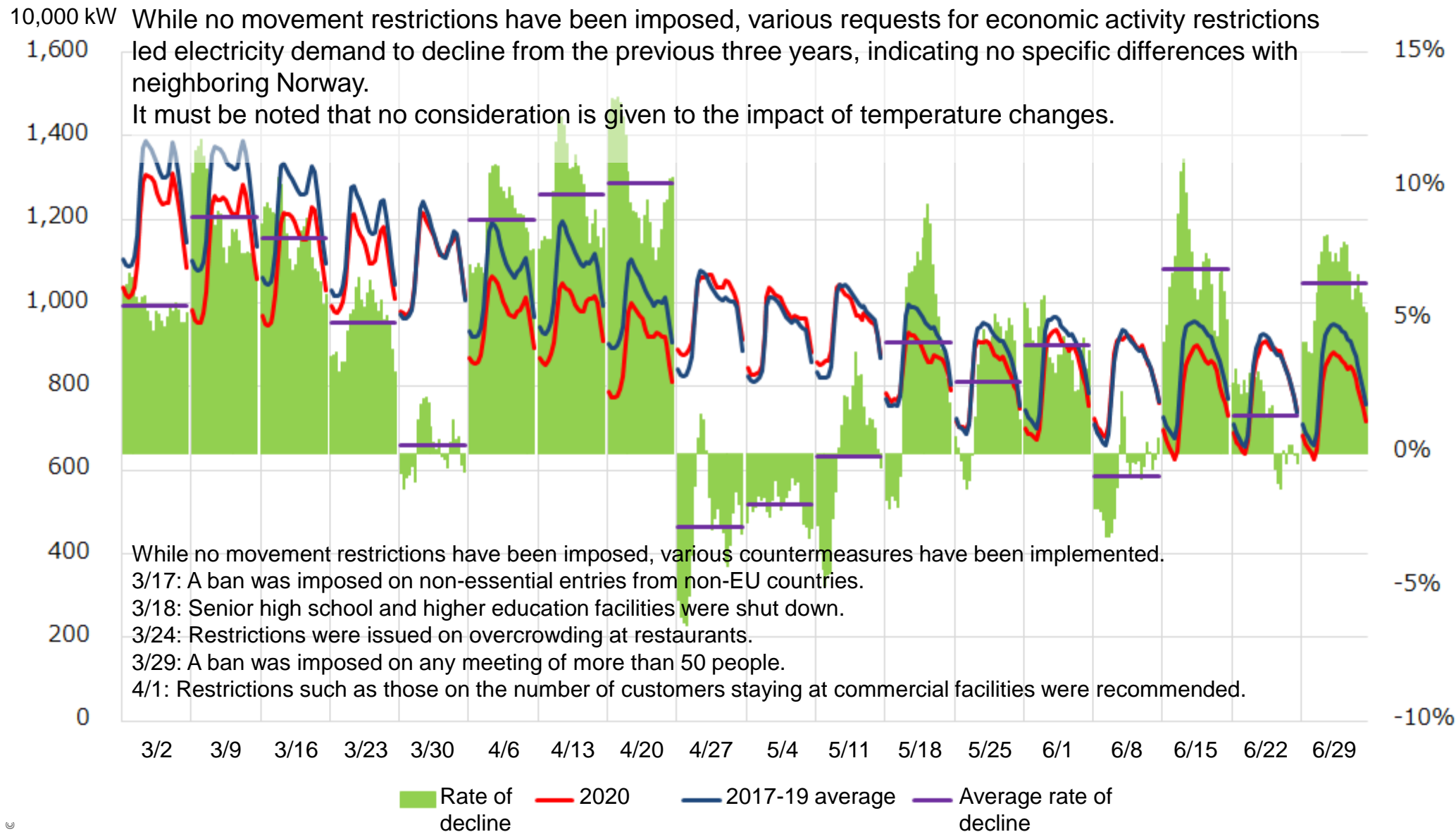
2017-19 average

Average rate of
decline

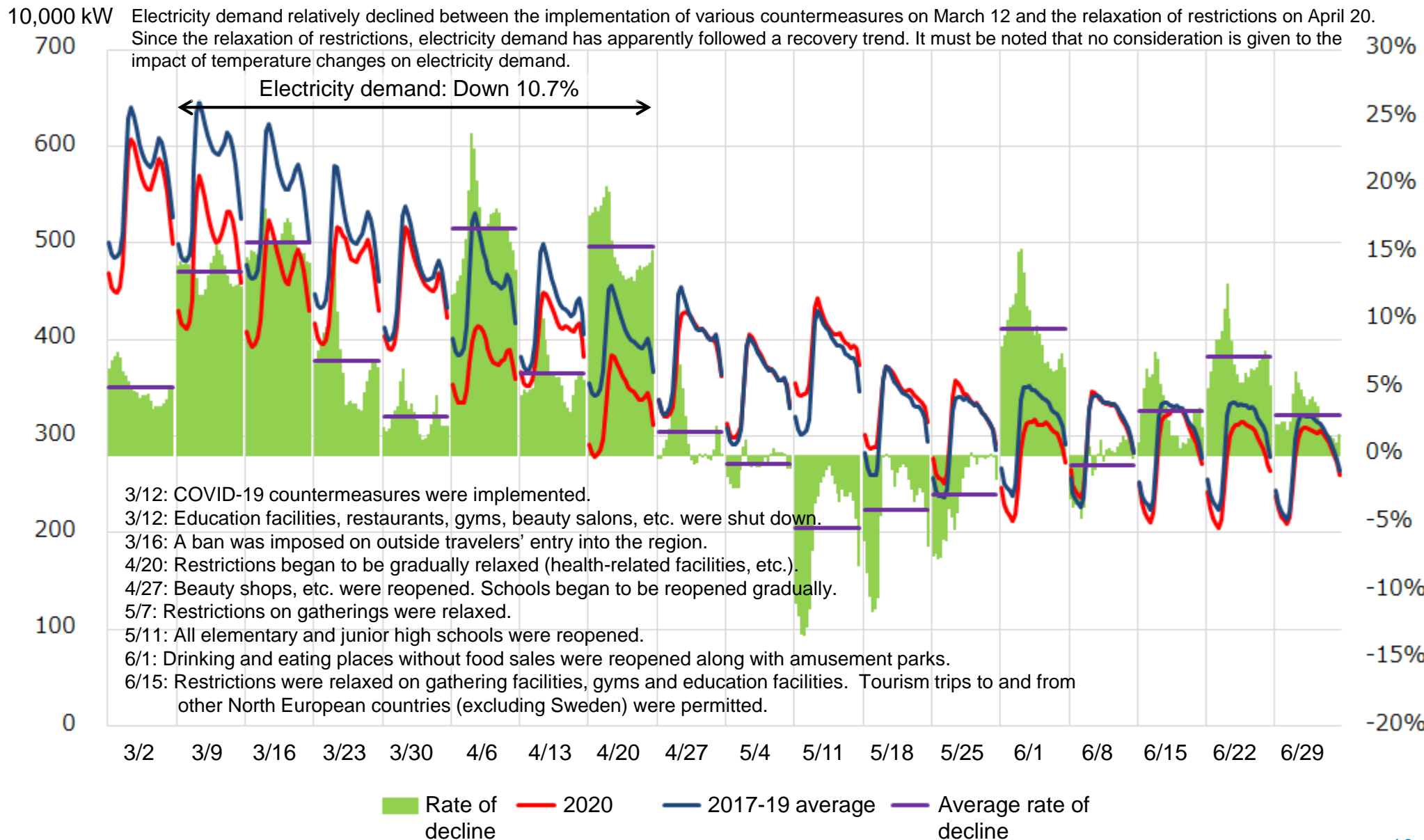


Source: Prepared from ENTSO-E Transparency Platform

Sweden's capital region (SE3)

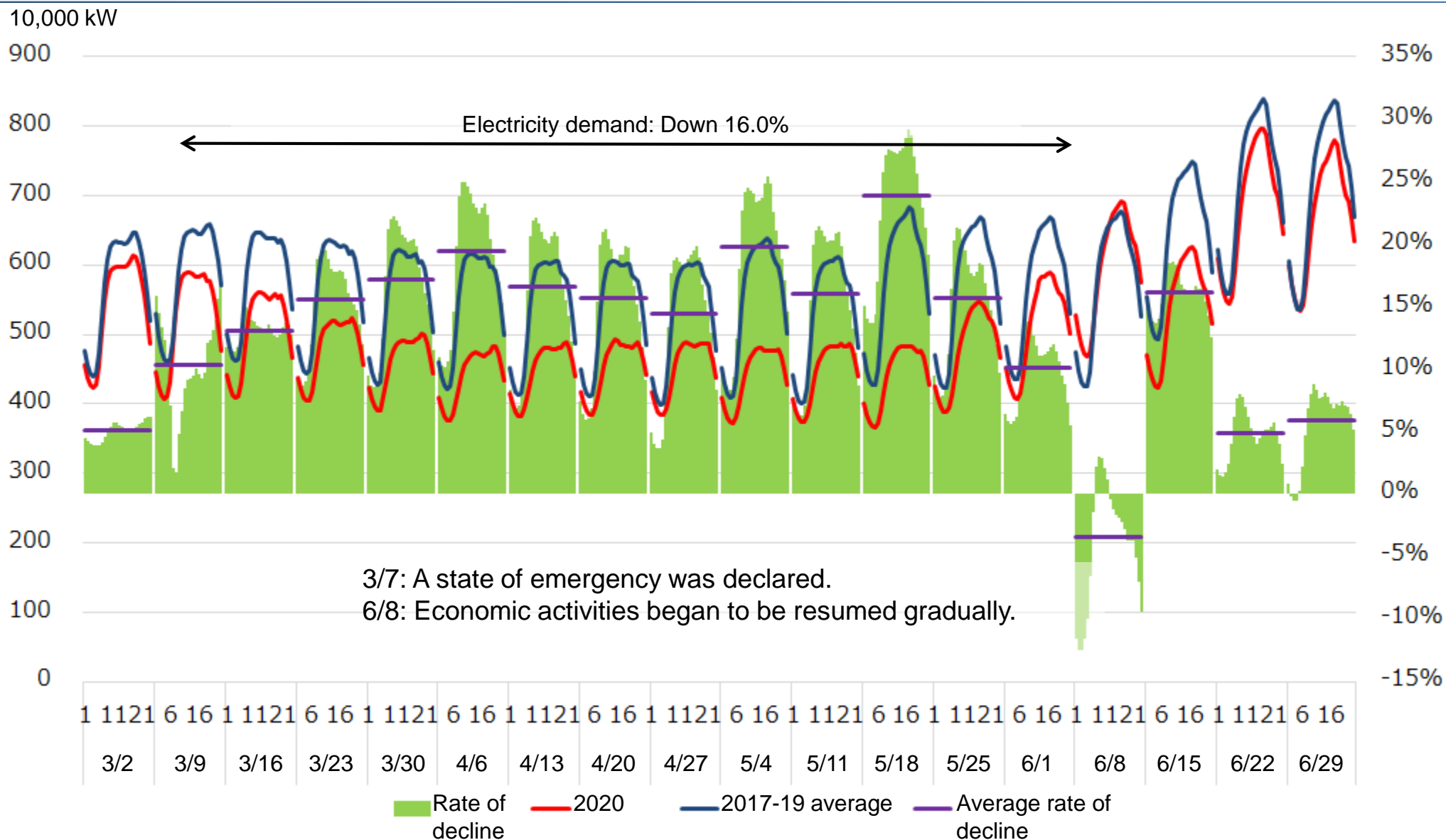


【Reference】 Norway's capital region (NO1)

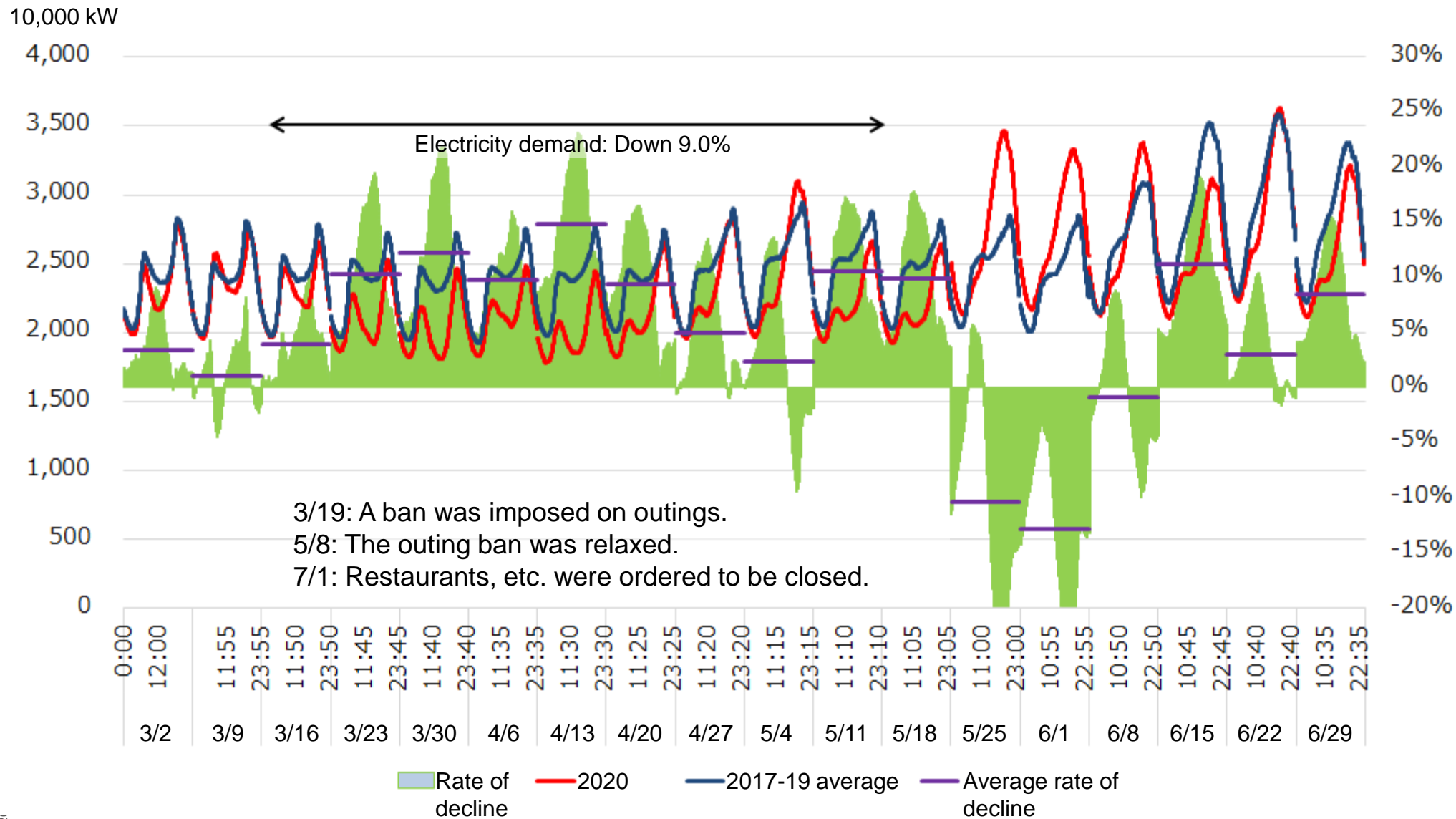




New York City

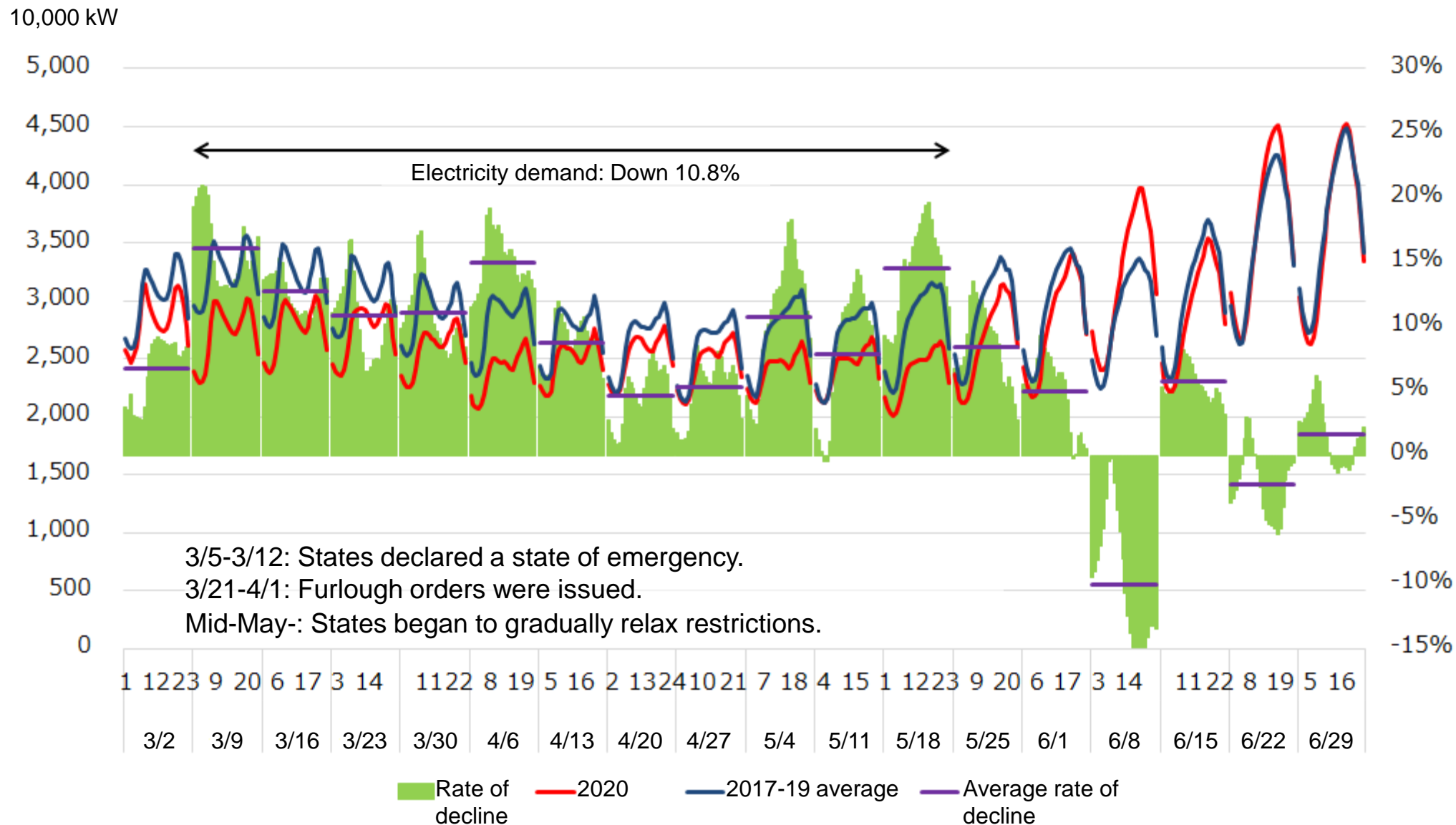


California ISO

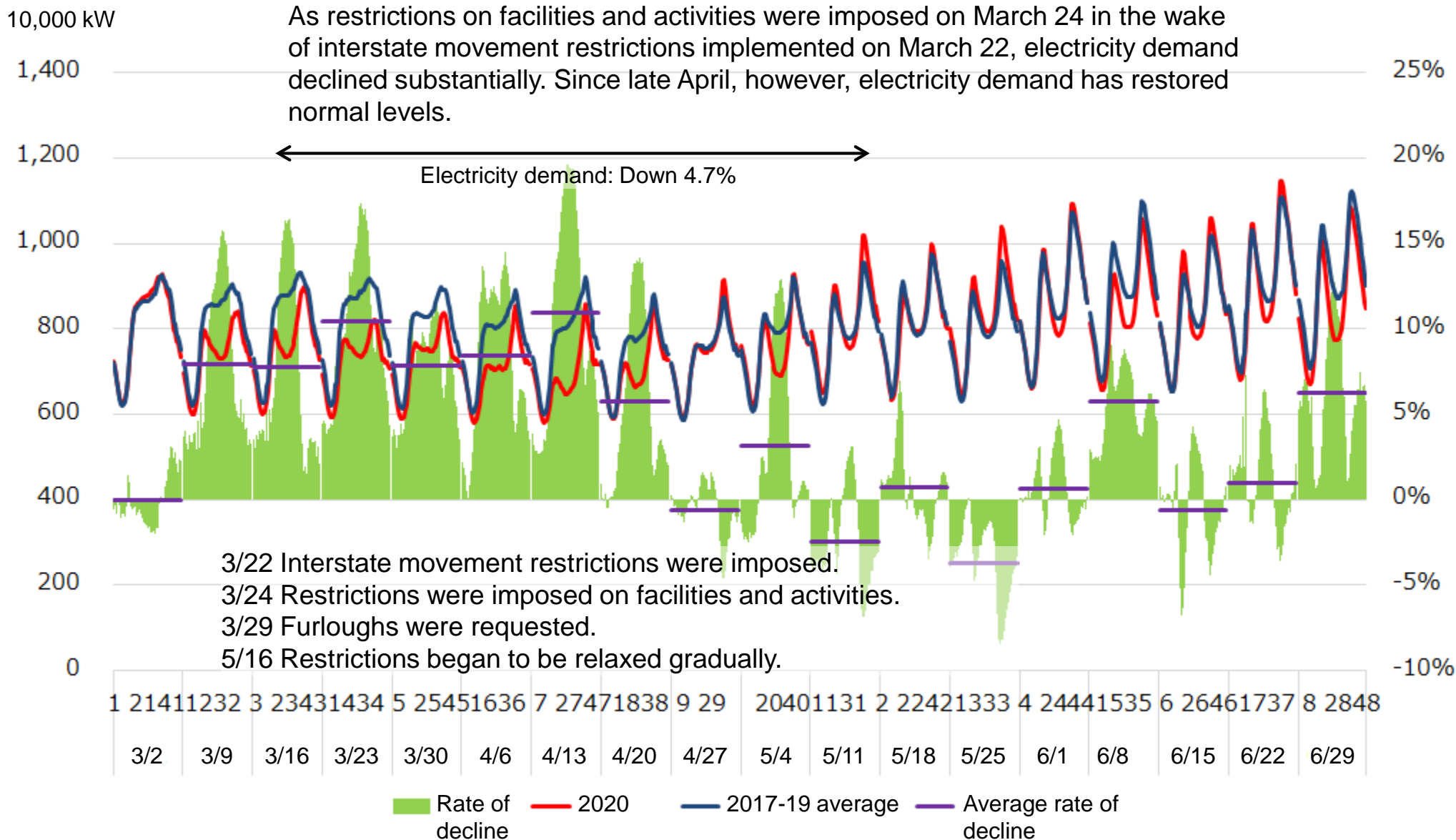


Source: Prepared from California ISO, "Production and Curtailments Data" and "Current and Forecasted Demand"

PJM Mid-Atlantic region



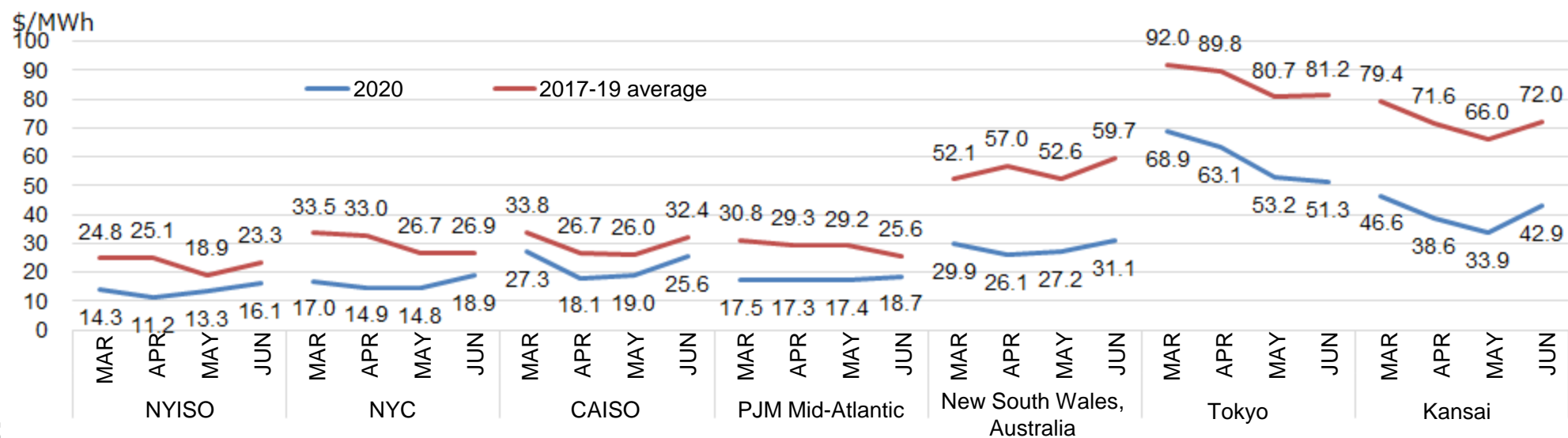
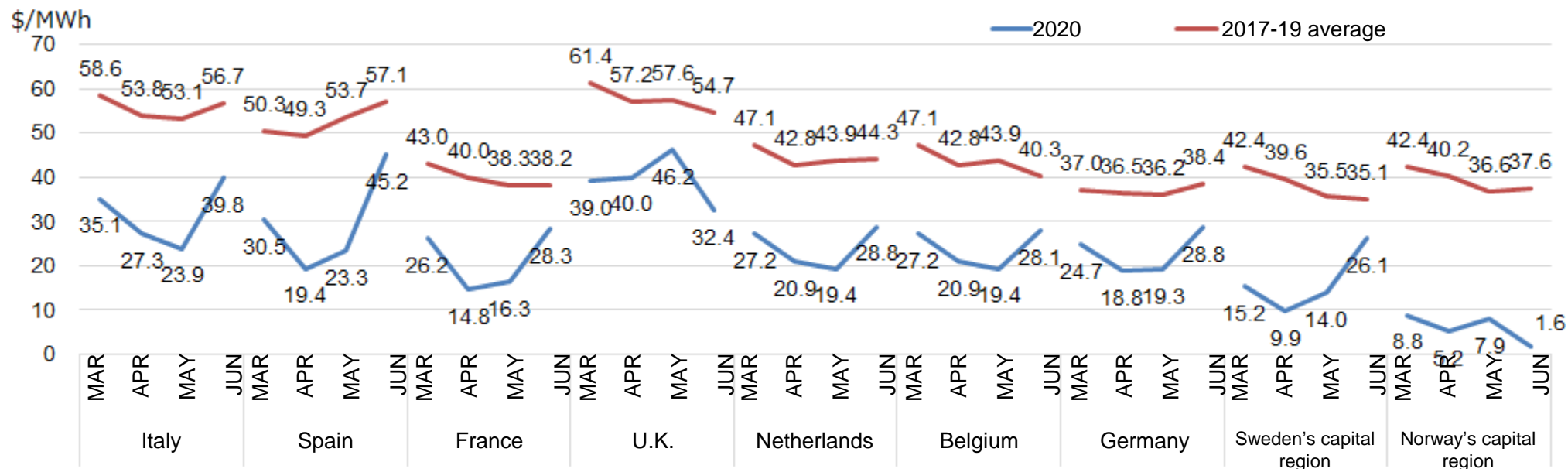
Source: Prepared from PJM, "Real-Time Energy Market"







March-June 2020 spot electricity prices (compared with 2017-2019 averages)



€1 for 119.29 yen, AU\$1 for 70.28 yen