FRAUNHOFER INSTITUTE FOR SOLAR ENERGY SYSTEMS ISE

Electricity production from solar and wind in Germany in 2014

Prof. Dr. Bruno Burger

Fraunhofer Institute for
Solar Energy Systems ISE

Freiburg, Germany

December 29, 2014

www.ise.fraunhofer.de

Fraunhofer ISE

New record in wind power production

Wind power achieved a new record of 29.7 GW in peak power production at Friday, 12th of December 2014. The daily wind energy production was 562 GWh. Both figures represent new records. The last records of 5th of December 2013 with a maximum power of 26.3 GW and a daily energy of 485 GWh have been exceeded by 13% resp. 16%.

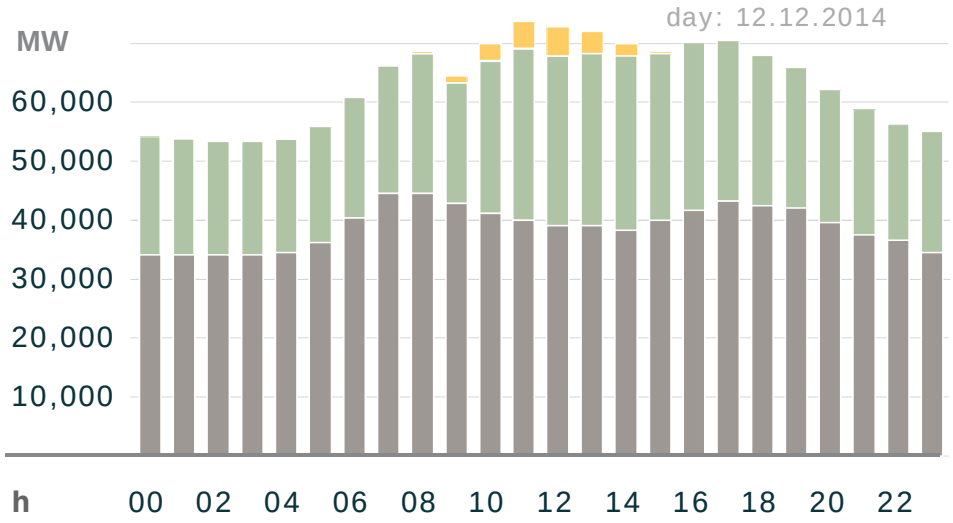
Photovoltaic power reached a maximum of 4.9 GW at the same day.

The maximum total power from solar and wind was about 34 GW, which is well below the maximum of 14.4.2014 when a total production of 38.8 GW was reached.

In order to provide sufficient space for the wind power in the grid, nuclear power plants have reduced their base load generation by about 10%, lignite plants by about 30%.

Date of maximum total and peak wind power production (in GW and GWh): Friday 12th of December

Actual production



	min. power	max. power	daily energy
Solar	0 GW	4.9 GW	20 GWh
Wind	19.0 GW	29.7 GW	562 GWh
Conventional > 100 MW	34.0 GW	44.5 GW	935 GWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

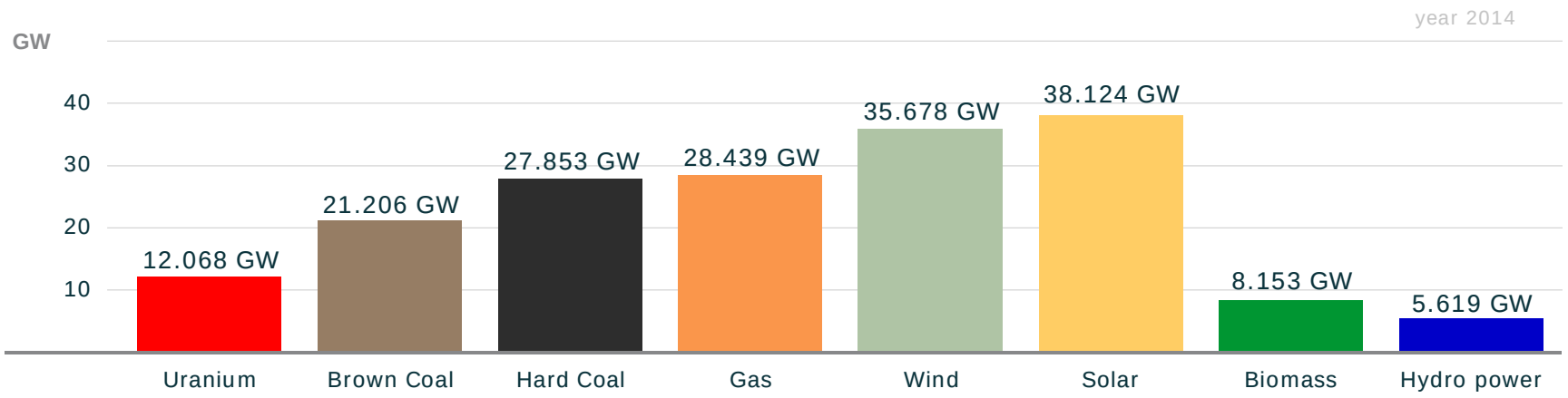
Fraunhofer ISE

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
- Weekly power curves
- Exemplary daily power curves

Installed power at October 29, 2014

Net installed capacity rating



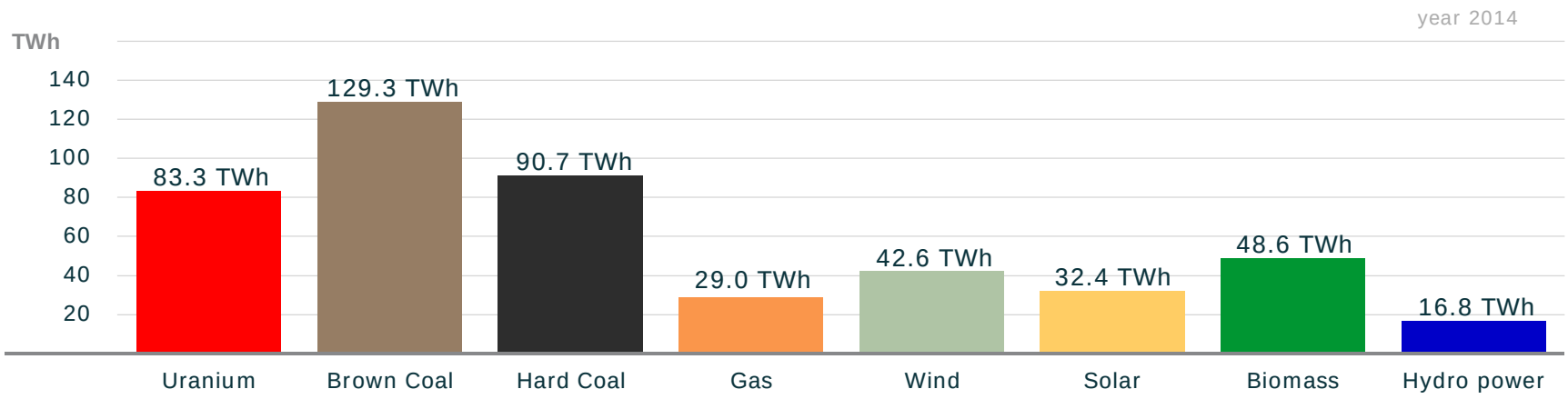
- wind power: 35.062 GW onshore; 616 MW offshore

Graph: B. Burger, Fraunhofer ISE; data: Bundesnetzagentur and AGEE (Biomass, Hydropower)

Fraunhofer ISE

Electricity production
First eleven months 2014

Electricity production: first eleven months 2014



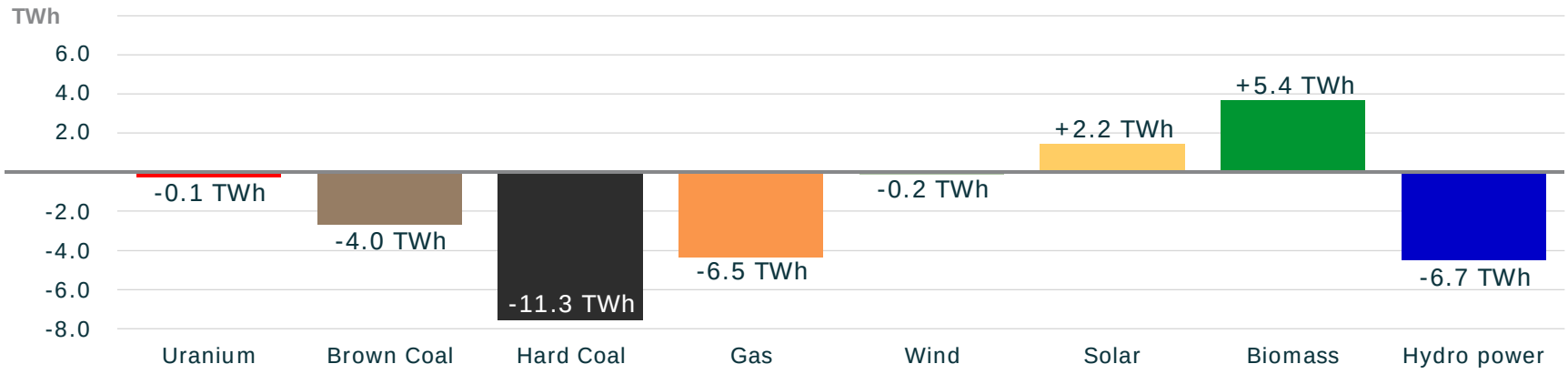
Graph: B. Burger, Fraunhofer ISE; data: European Stock Exchange EEX, energetic corrected values

Fraunhofer ISE

Absolute change in electricity production

First eleven months 2014 versus first eleven months 2013

Change in electricity production: first eleven months 2014 versus first eleven months 2013

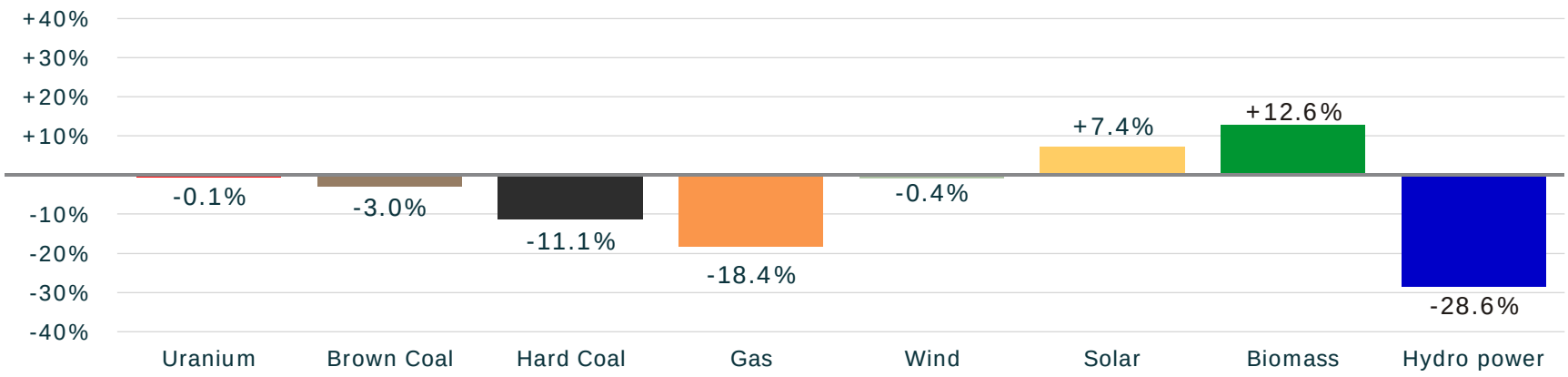


Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (2013), European Stock Exchange EEX (2014)

Fraunhofer ISE

Relative change in electricity production

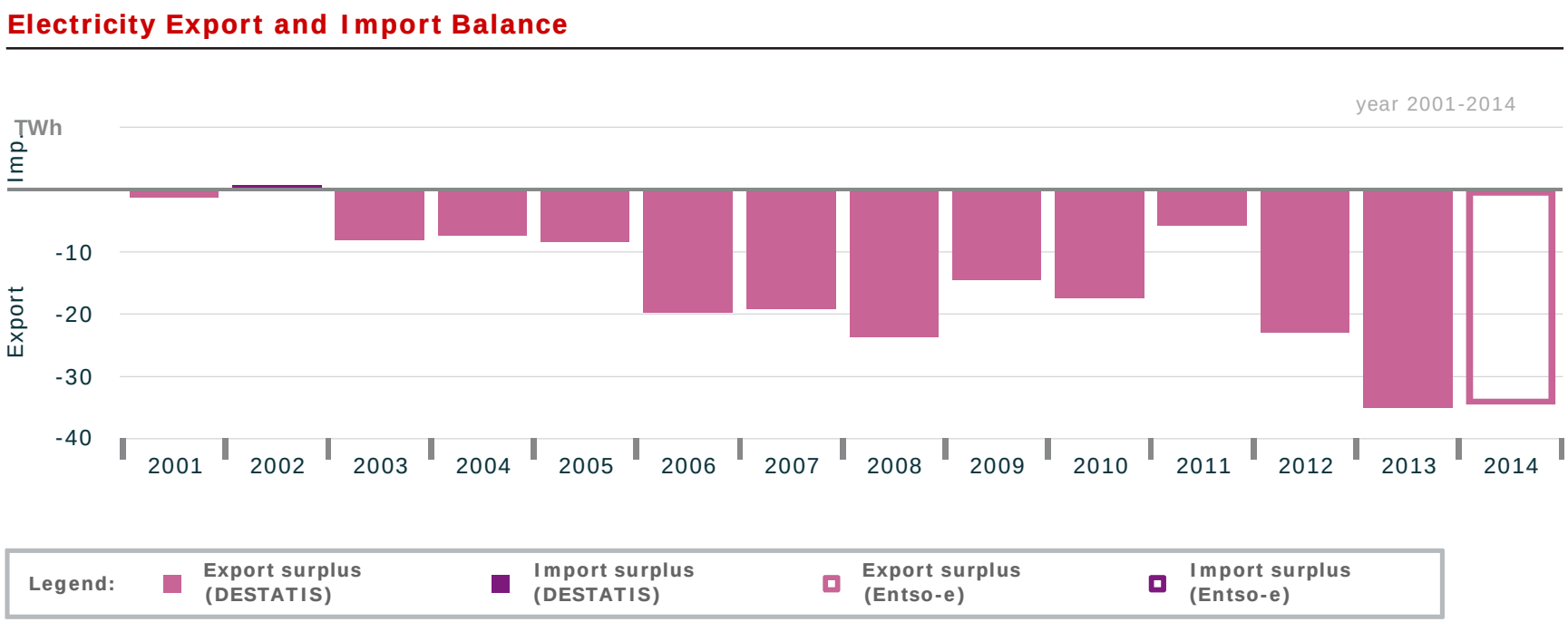
First eleven months 2014 versus first eleven months 2013



Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (2013), European Stock Exchange EEX (2014)

Fraunhofer ISE

Export and import balance since 2001



- The export surplus in 2013 was approx. 33.8 TWh.

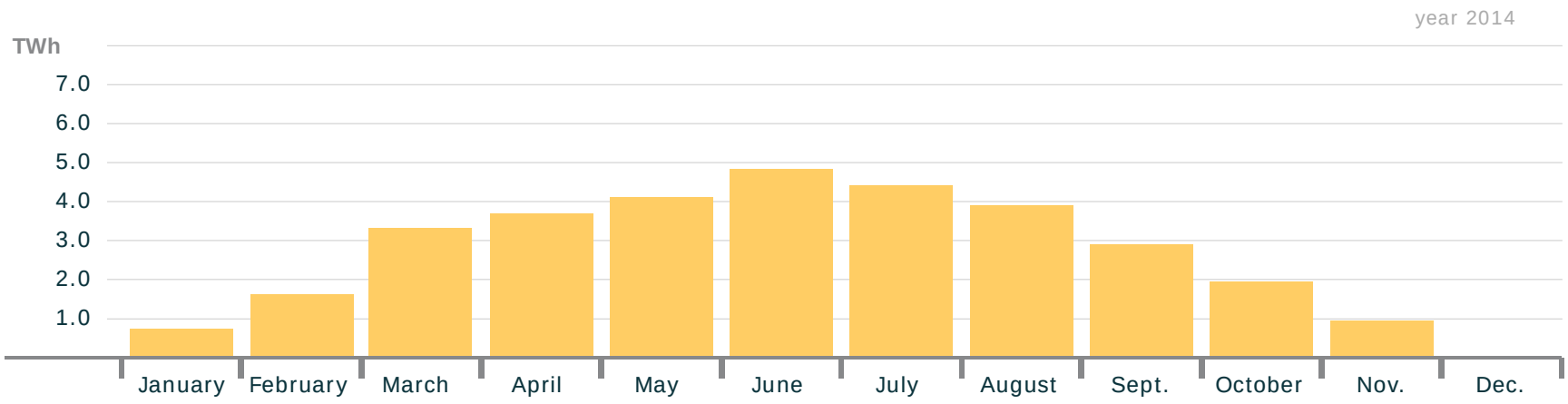
Graph: B. Burger, Fraunhofer ISE; Data: BMWi Energiedaten (-2013); DESTATIS (2014)

Fraunhofer ISE

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
- Weekly power curves
- Exemplary daily power curves

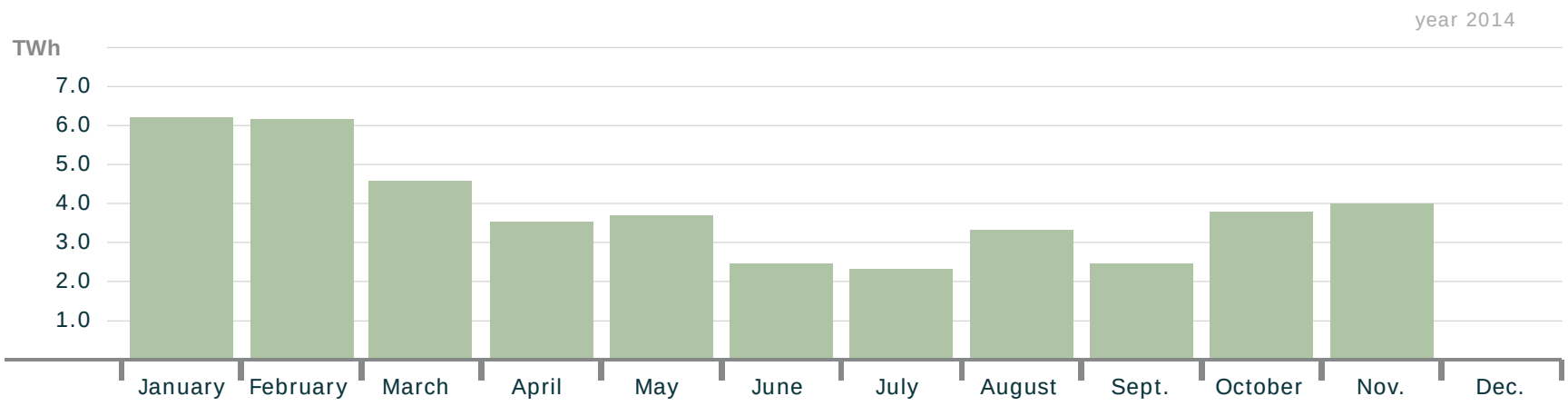
Monthly Production Solar



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

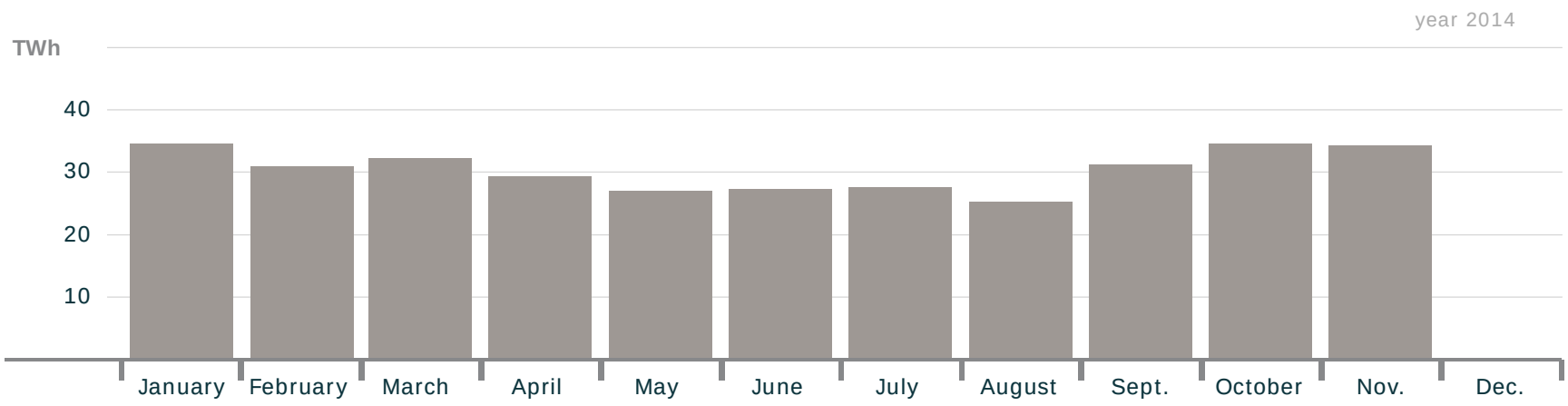
Monthly Production Wind



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

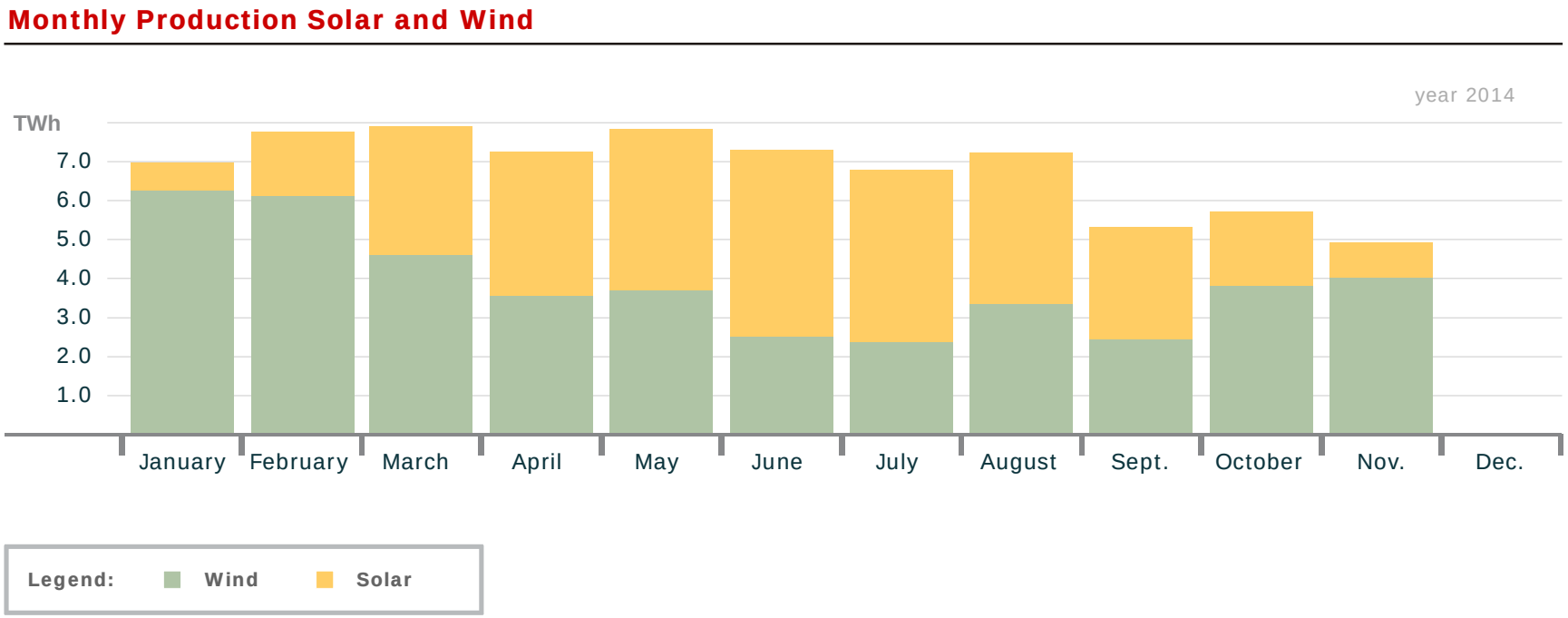
Monthly Production Conventional > 100 MW



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

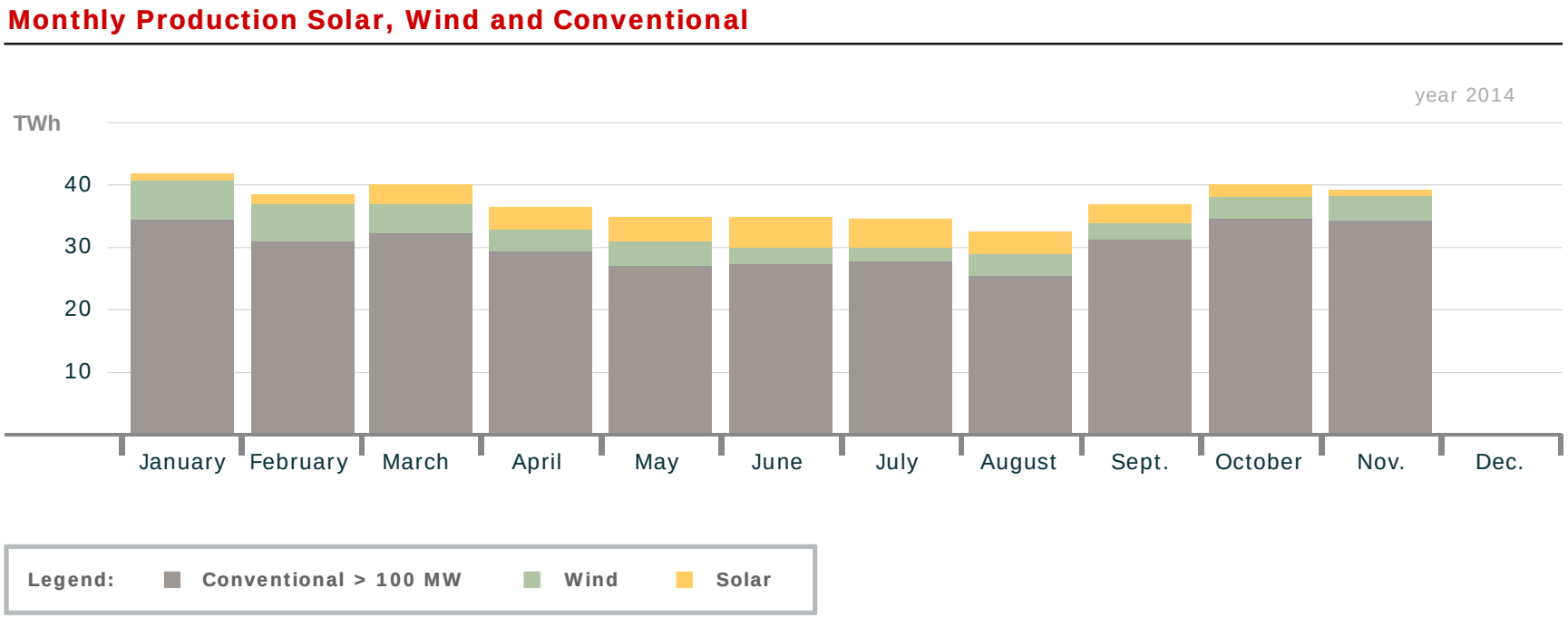
Monthly Production Solar and Wind



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

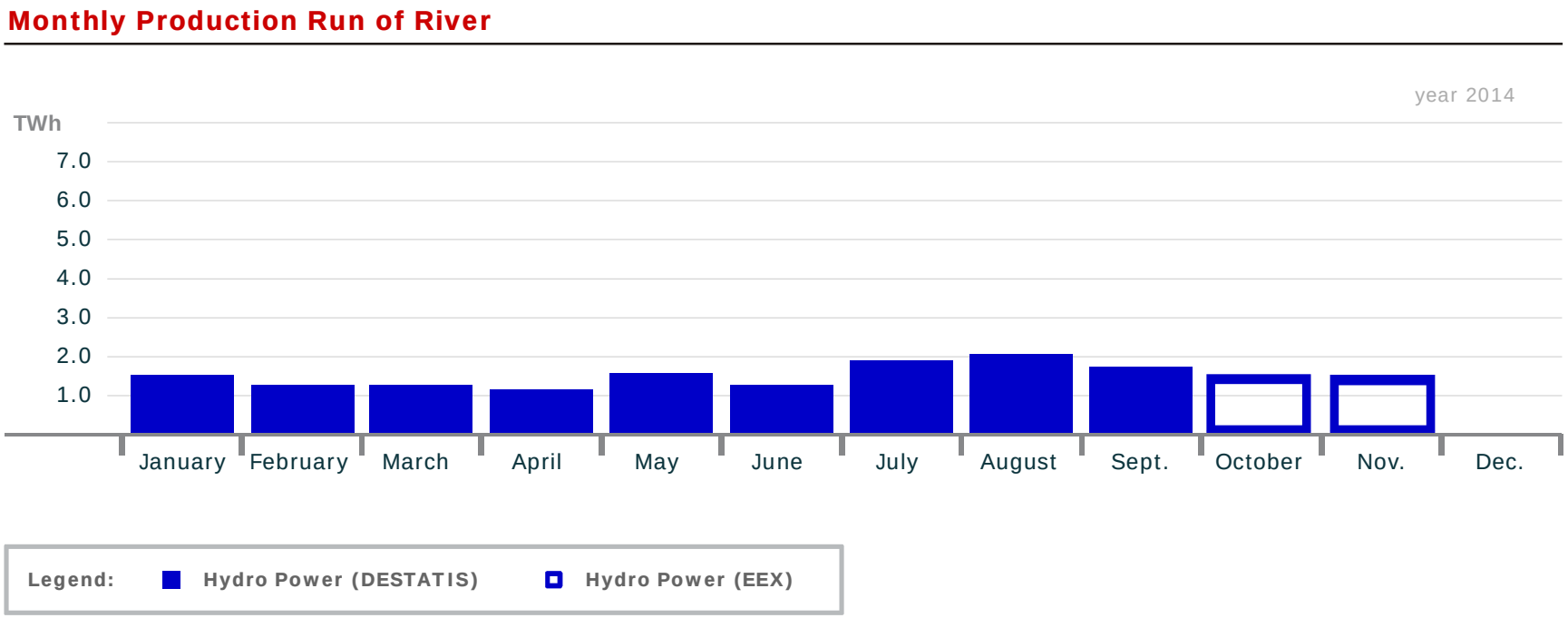
Monthly Production Solar, Wind and Conventional



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

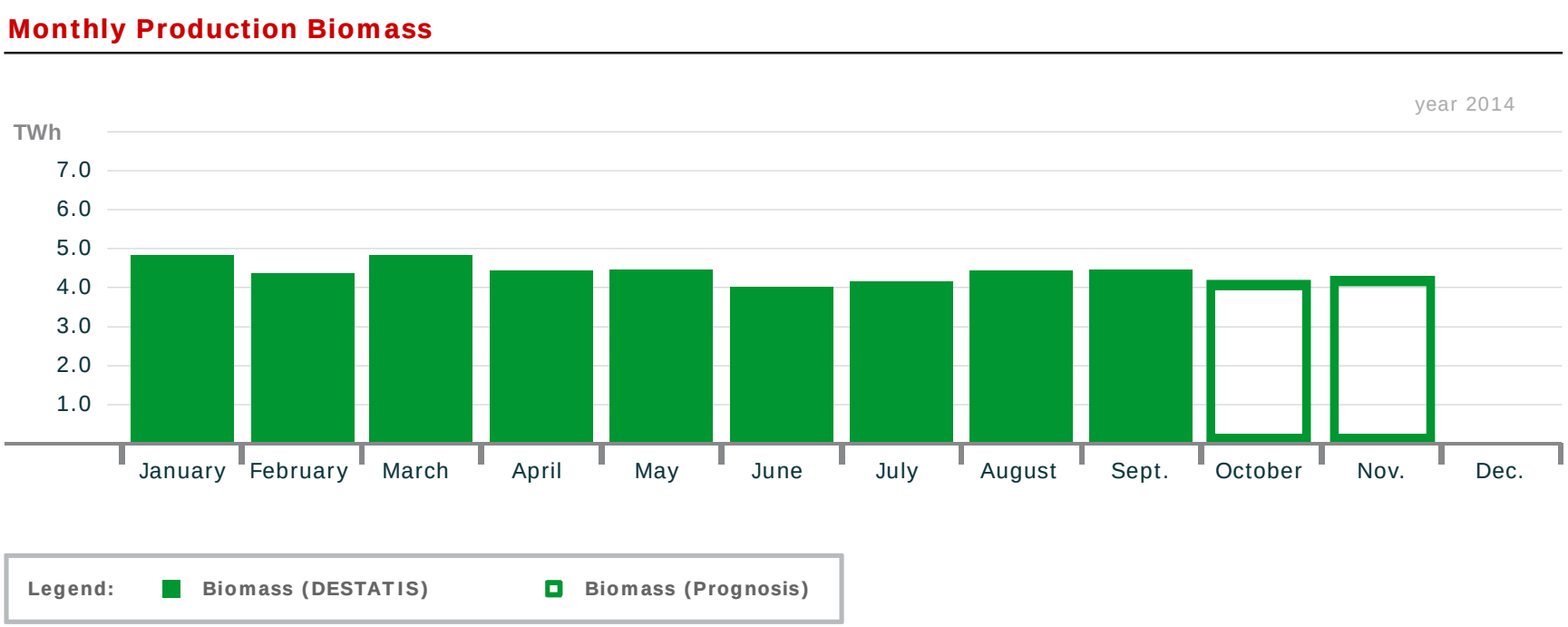
Monthly Production Hydro Power



Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (DESTATIS), European Stock Exchange (EEX)

Fraunhofer ISE

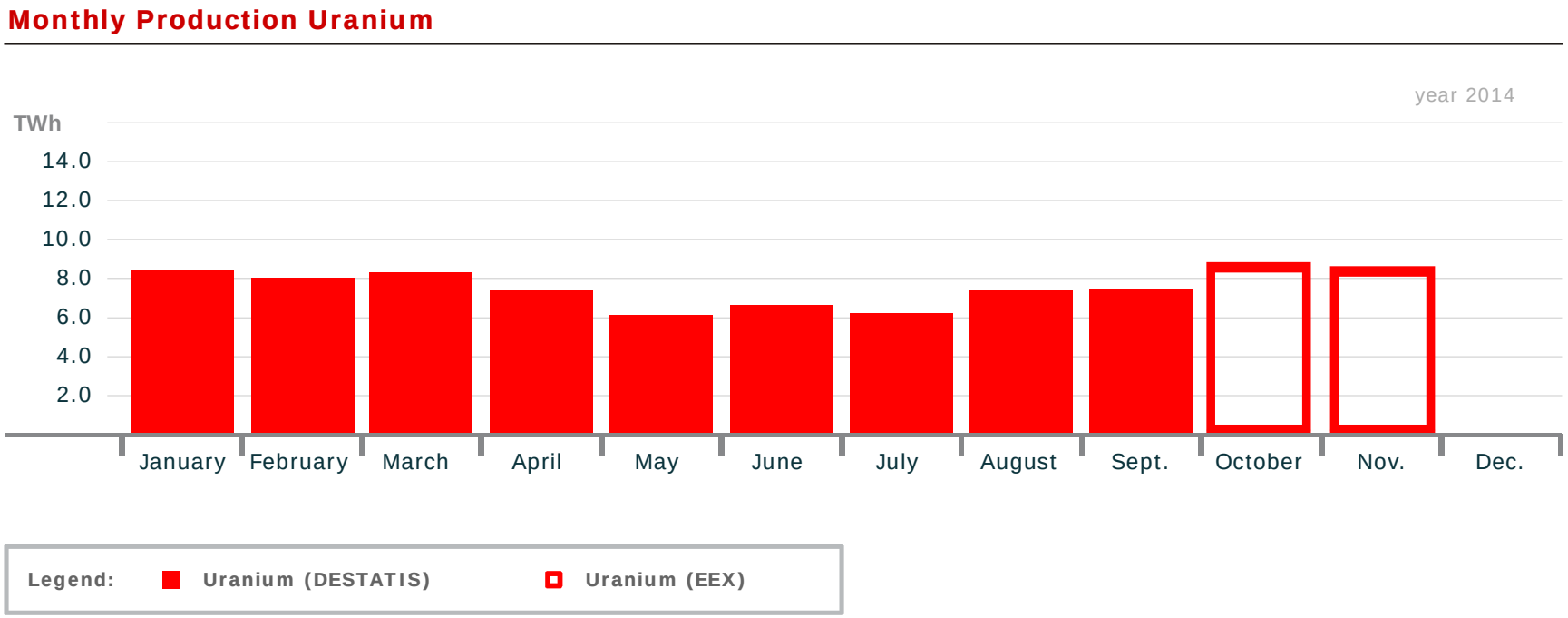
Monthly Production Biomass



Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (DESTATIS)

Fraunhofer ISE

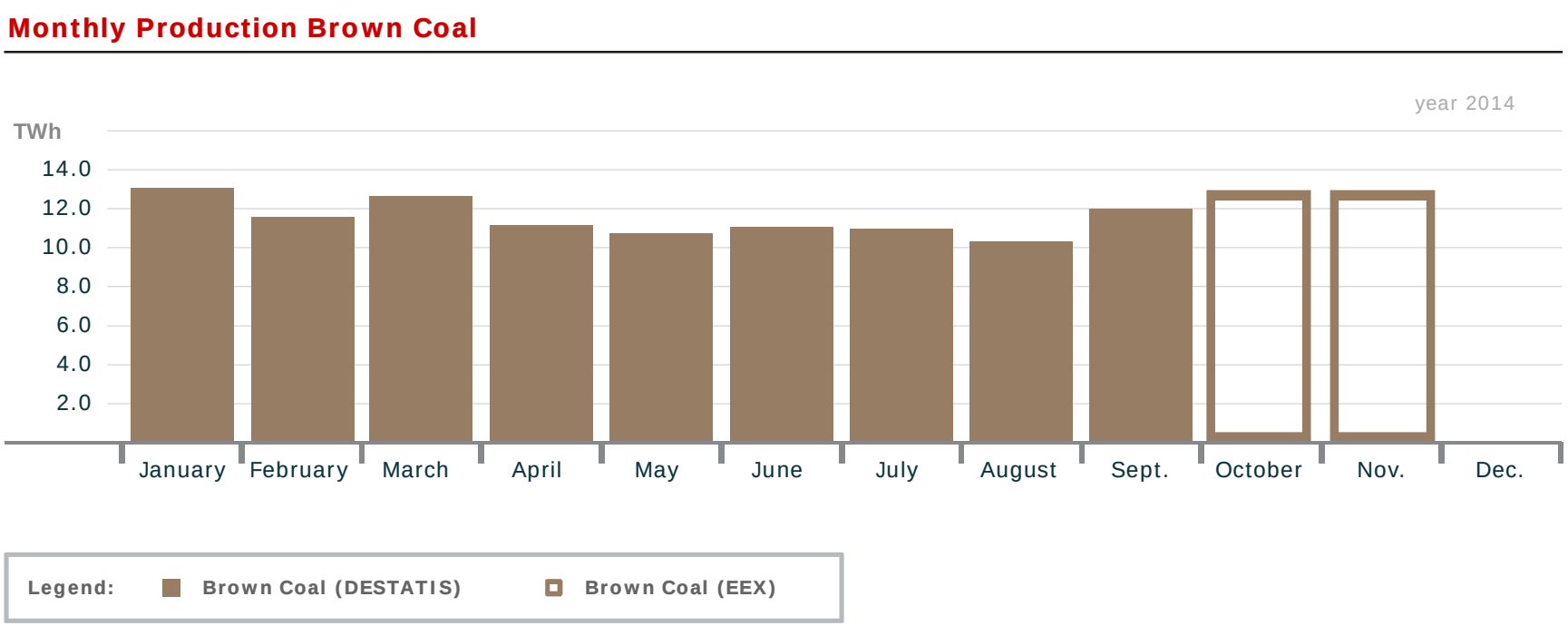
Monthly Production Uranium



Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (DESTATIS), European Stock Exchange (EEX)

Fraunhofer ISE

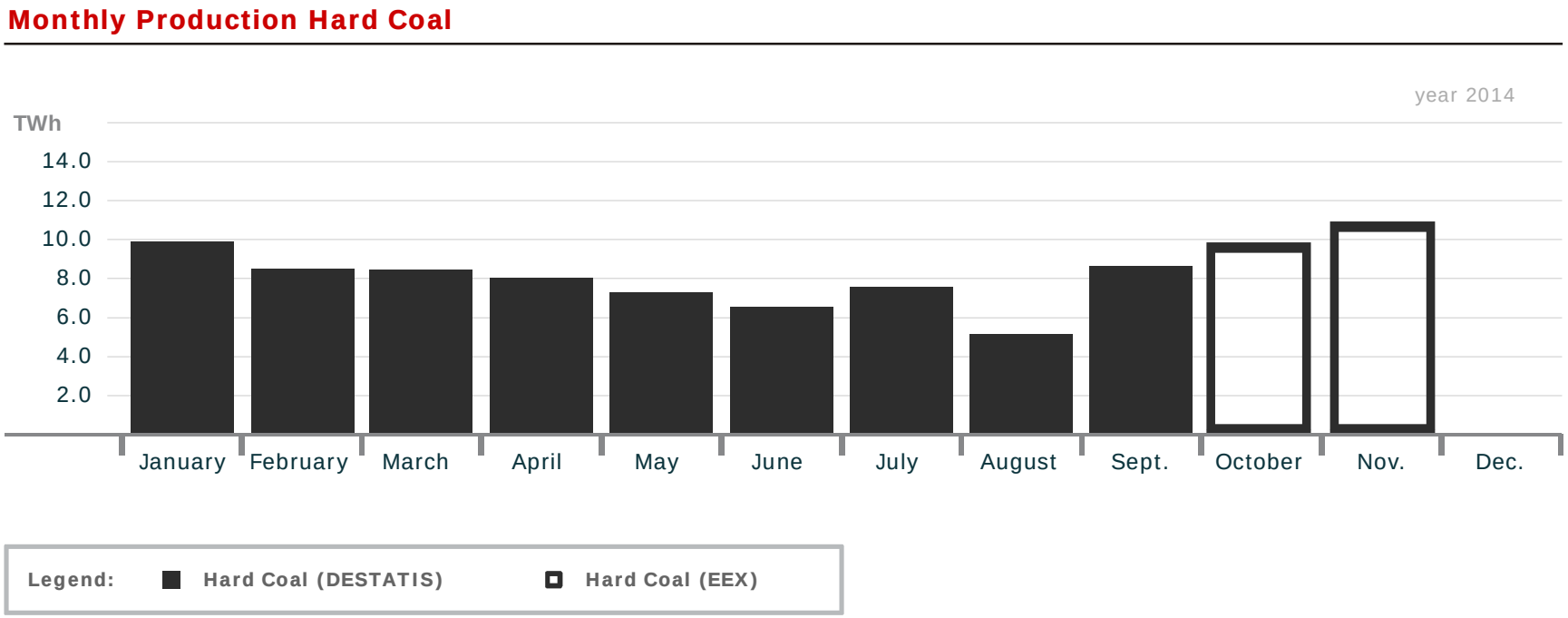
Monthly Production Brown Coal



Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (DESTATIS), European Stock Exchange (EEX)

Fraunhofer ISE

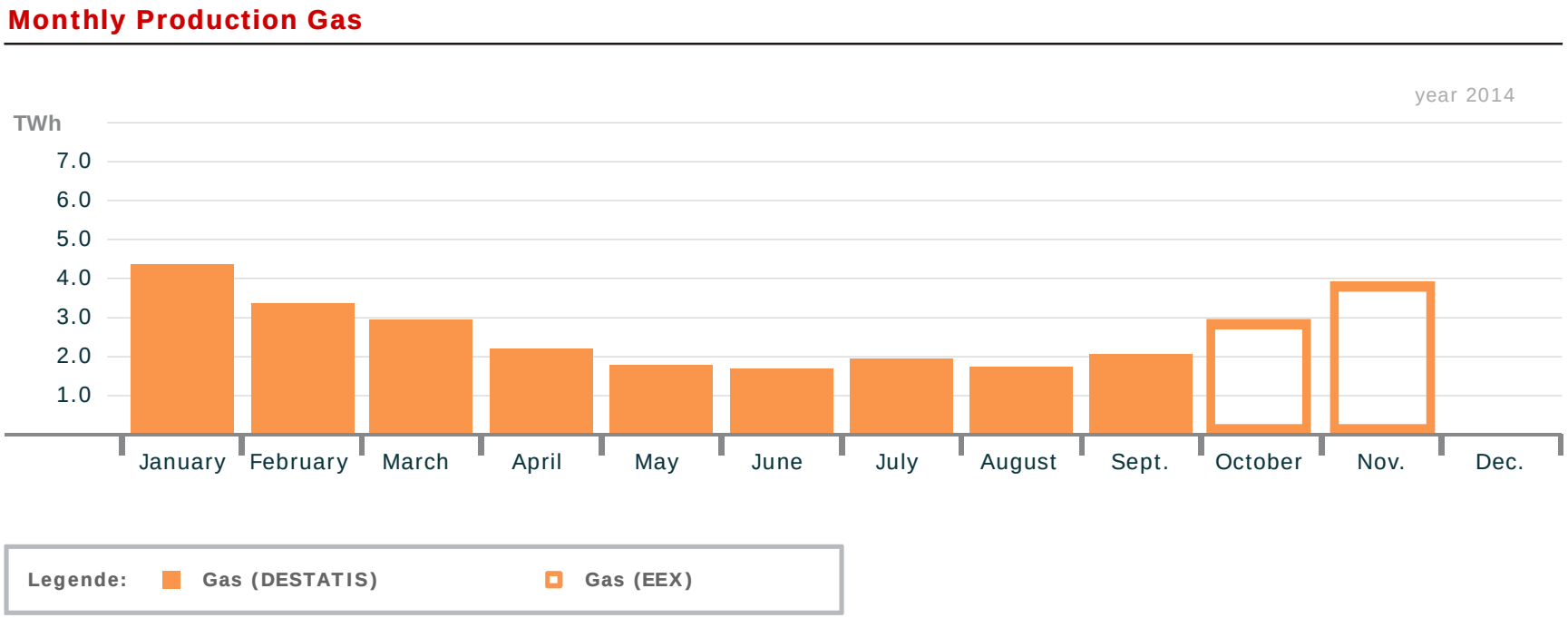
Monthly Production Hard Coal



Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (DESTATIS), European Stock Exchange (EEX)

Fraunhofer ISE

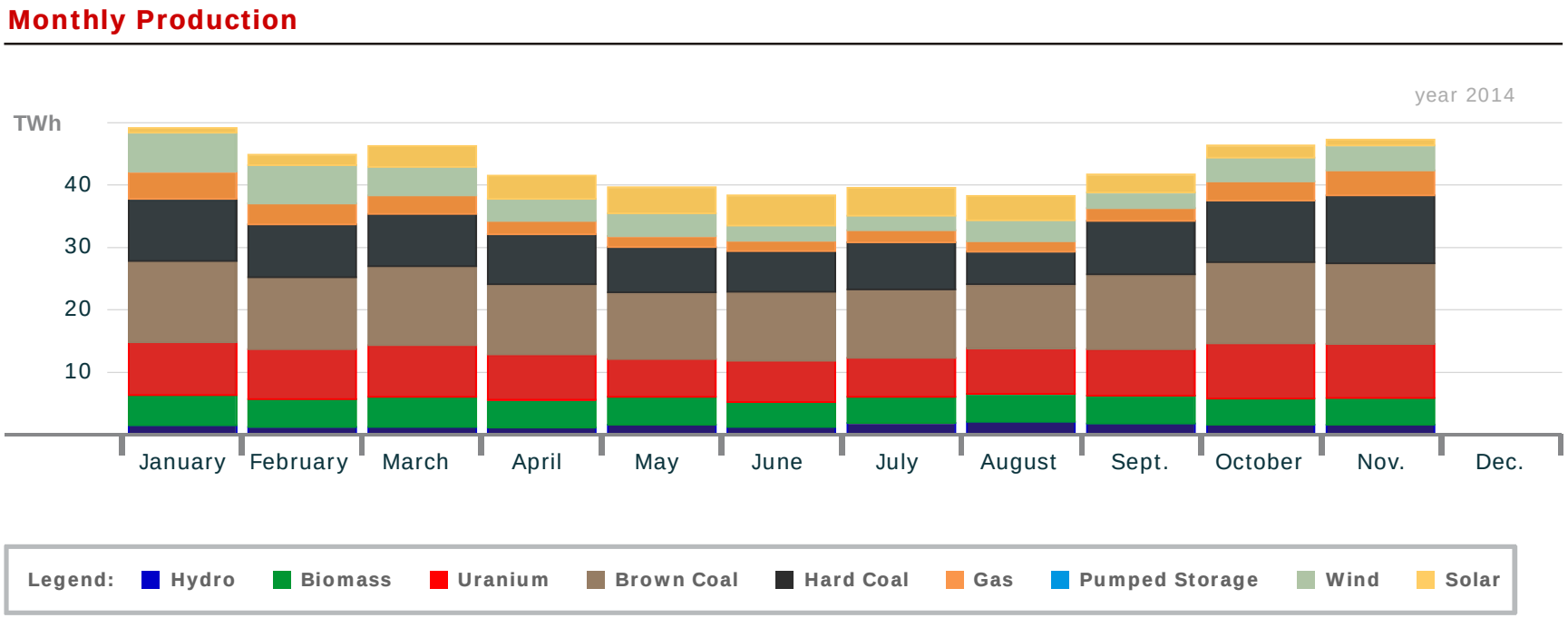
Monthly Production Gas



Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (DESTATIS), European Stock Exchange (EEX)

Fraunhofer ISE

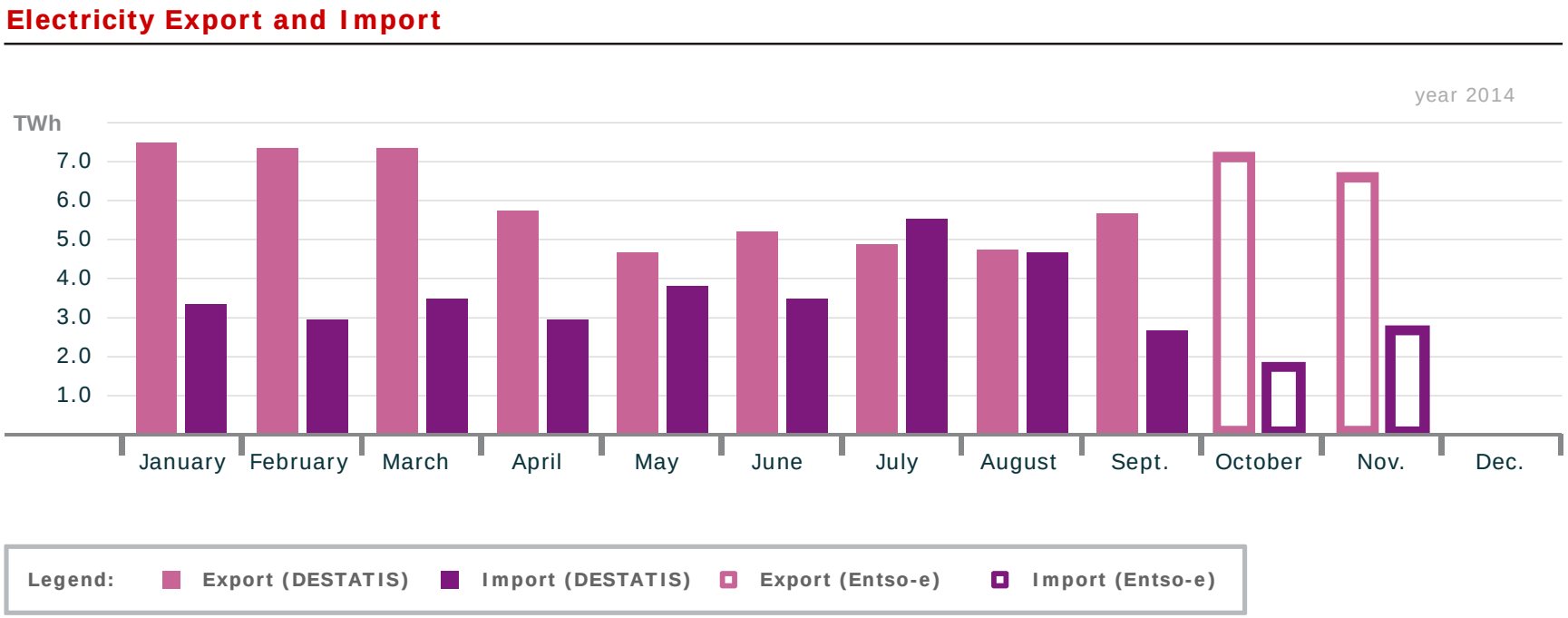
Monthly Production



Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (DESTATIS), European Stock Exchange (EEX)

Fraunhofer ISE

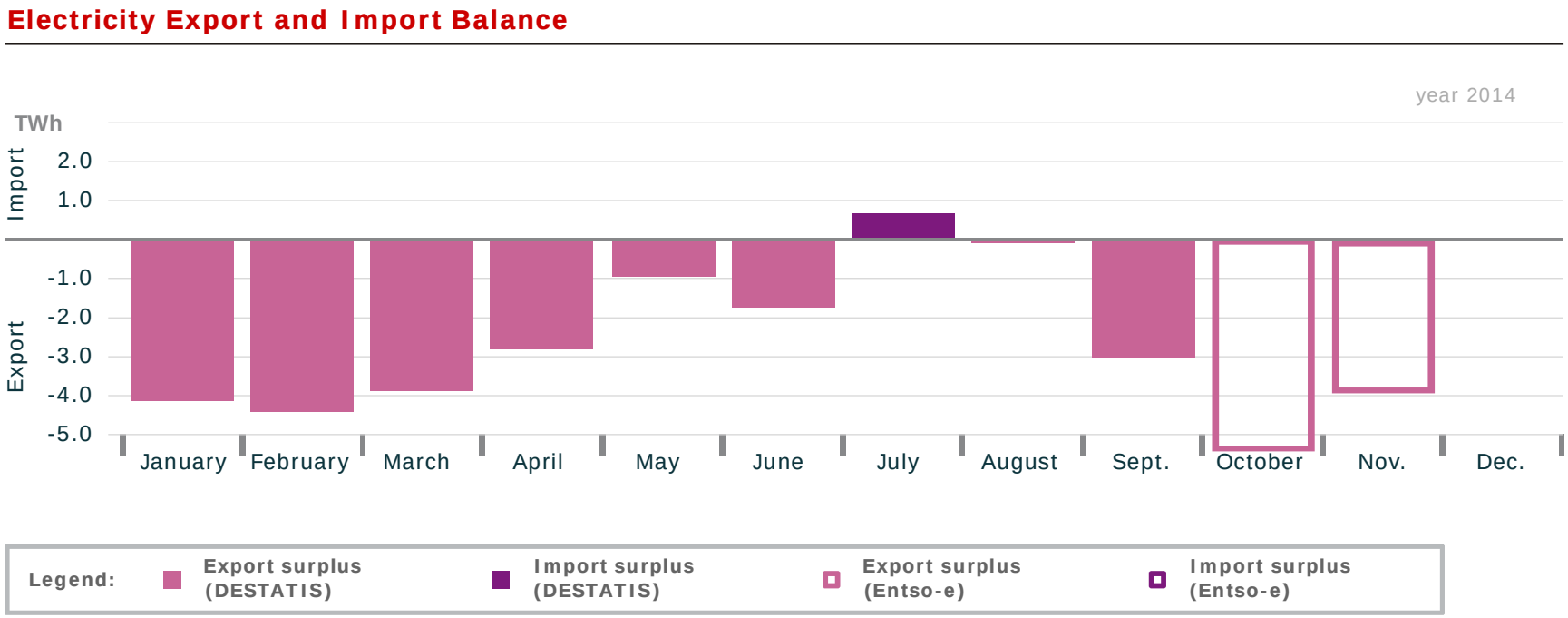
Electricity Export and Import



Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (DESTATIS); Entso-e

Fraunhofer ISE

Export and Import Balance

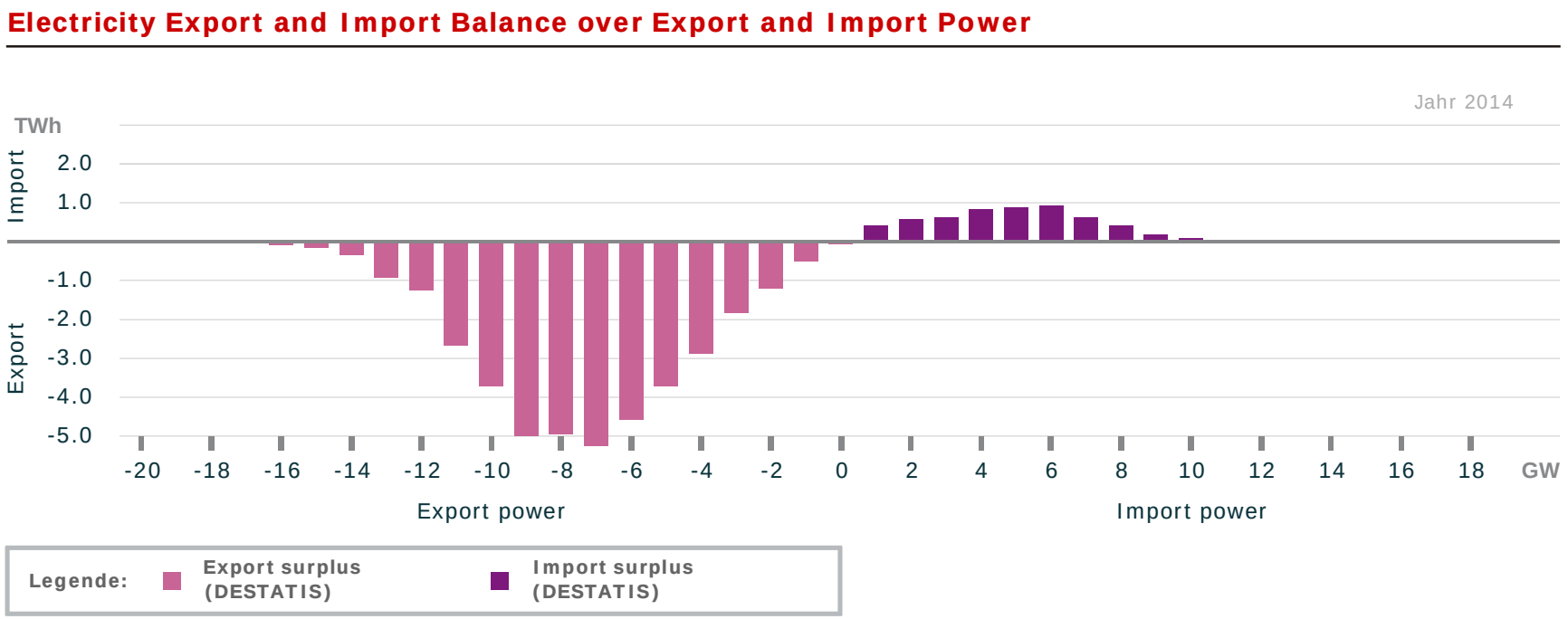


- The export surplus from January to September was approx. 20 TWh.

Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (DESTATIS); Entso-e

Fraunhofer ISE

Histogram: Export and Import Balance



- The maximal export surplus power was 16 GW
- The maximal import surplus power was 11 GW

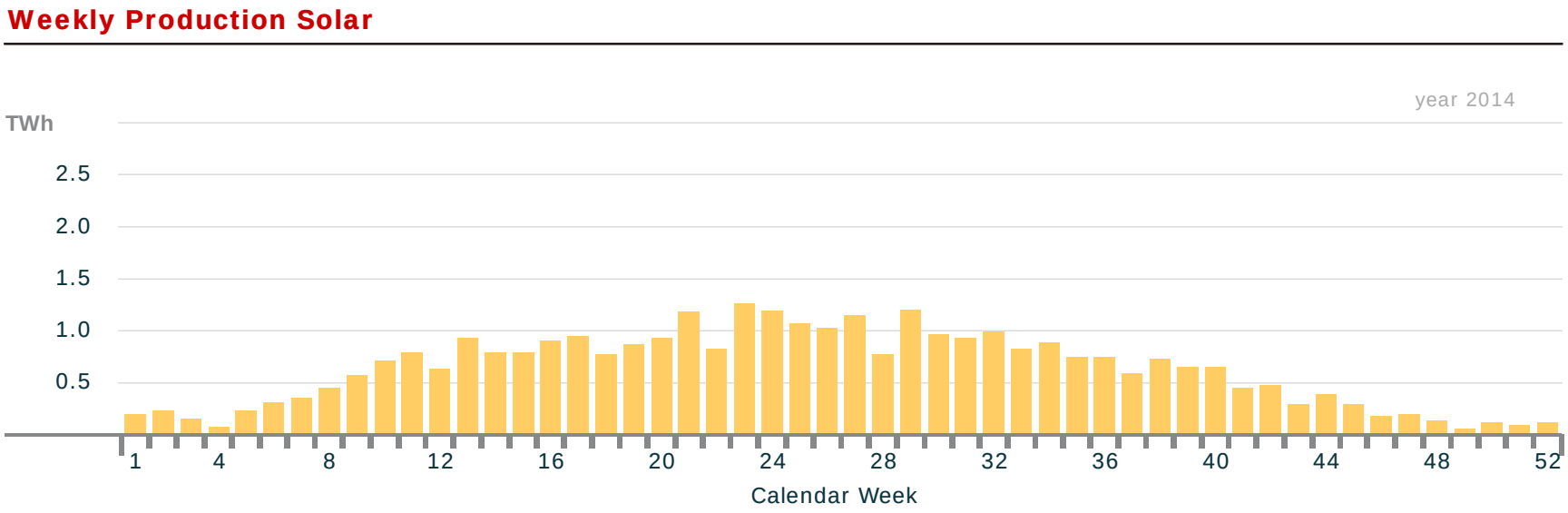
Graph: B. Burger, Fraunhofer ISE; data: Statistisches Bundesamt (DESTATIS); Entso-e

Fraunhofer ISE

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
- Weekly power curves
- Exemplary daily power curves

Weekly Production Solar

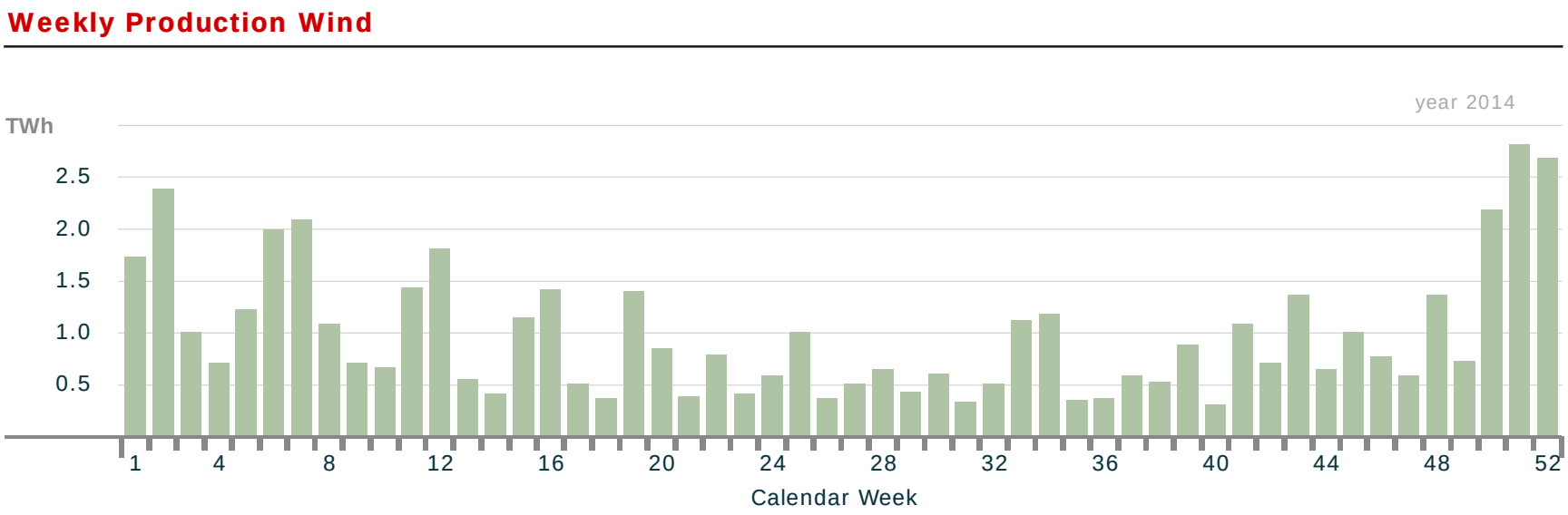


- The maximal weekly solar electricity production was 1.26 TWh in calendar week 23
- The minimal weekly production was 0.06 TWh in calendar week 49

Graph: B. Burger, Fraunhofer ISE; solar data: EEX Transparency Platform

Fraunhofer ISE

Weekly Production Wind

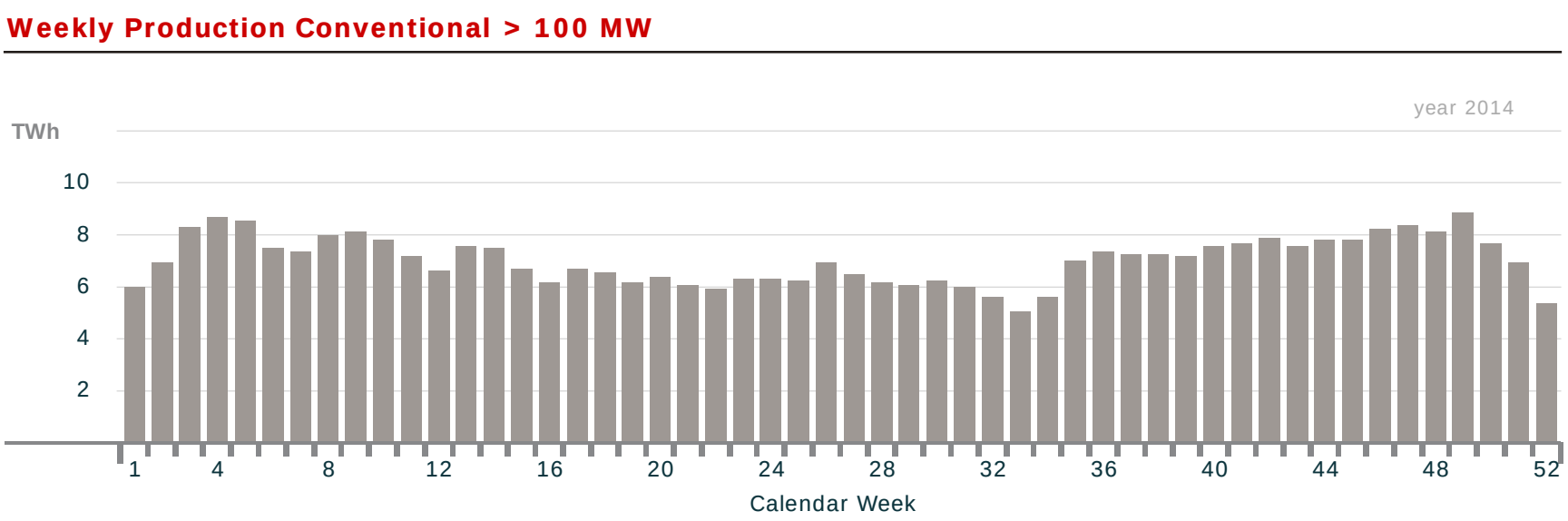


- The maximal weekly wind electricity production was 2.8 TWh in calendar week 51
- The minimal weekly production was 0.32 TWh in calendar week 40

Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Weekly Production Conventional > 100 MW

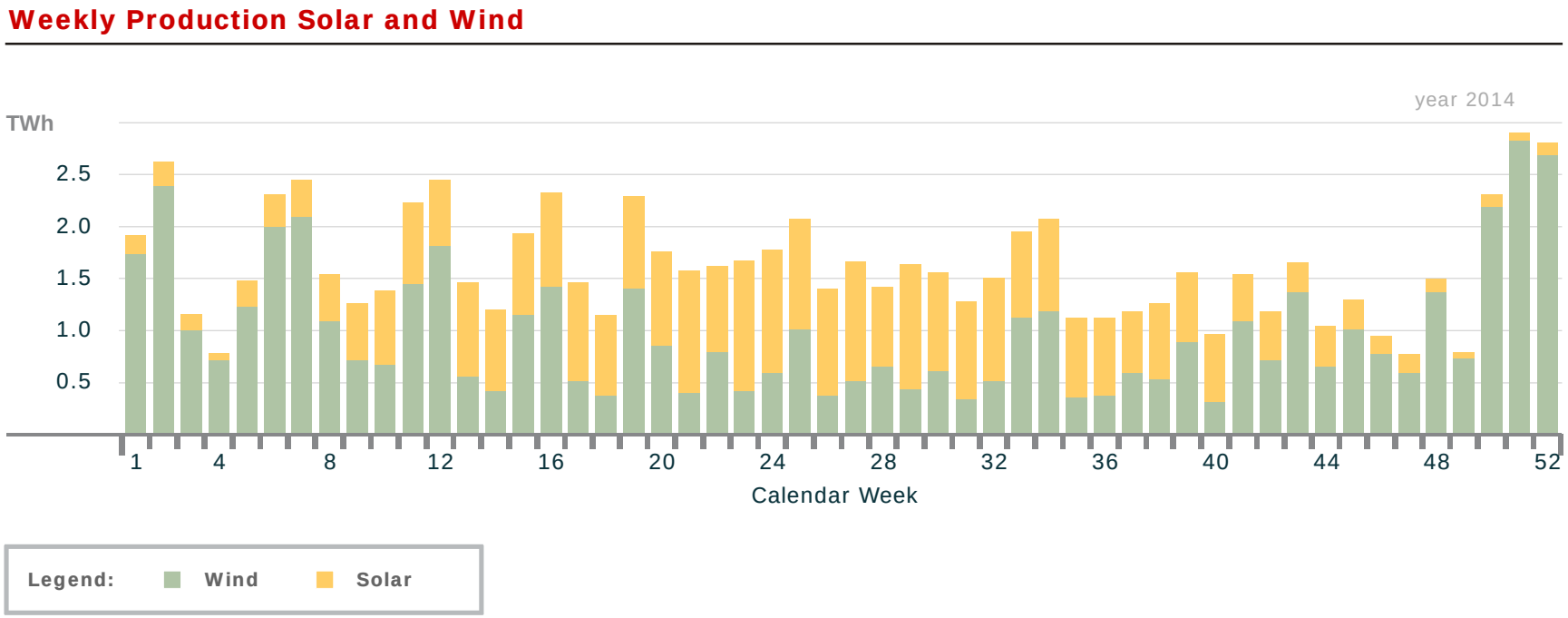


- The maximal weekly electricity production from conventional sources was 8.8 TWh in calendar week 49
- The minimal weekly production was 5.05 TWh in calendar week 33

Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Weekly Production Solar and Wind

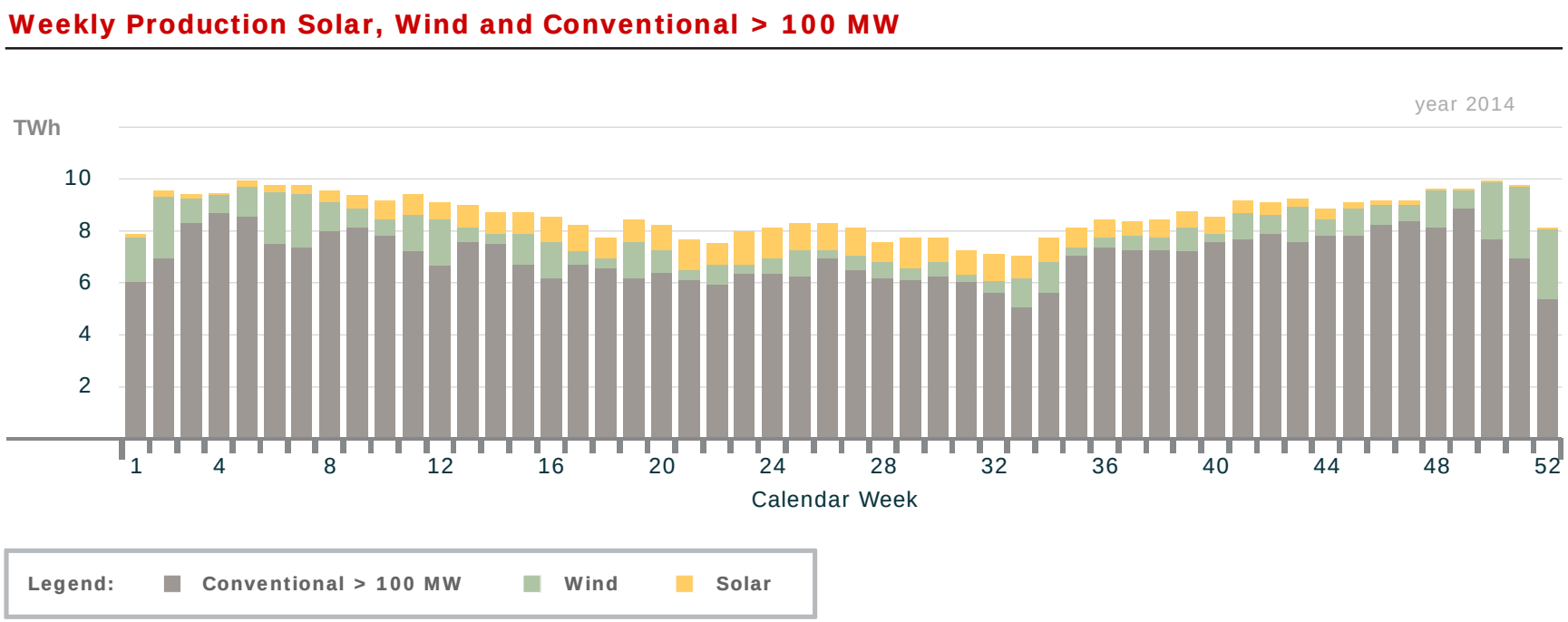


- The maximal weekly sum of solar and wind production was 2.6 TWh in calendar week 2
- The minimal weekly sum was 0.8 TWh in calendar week 4

Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Weekly Production Solar, Wind and Conventional

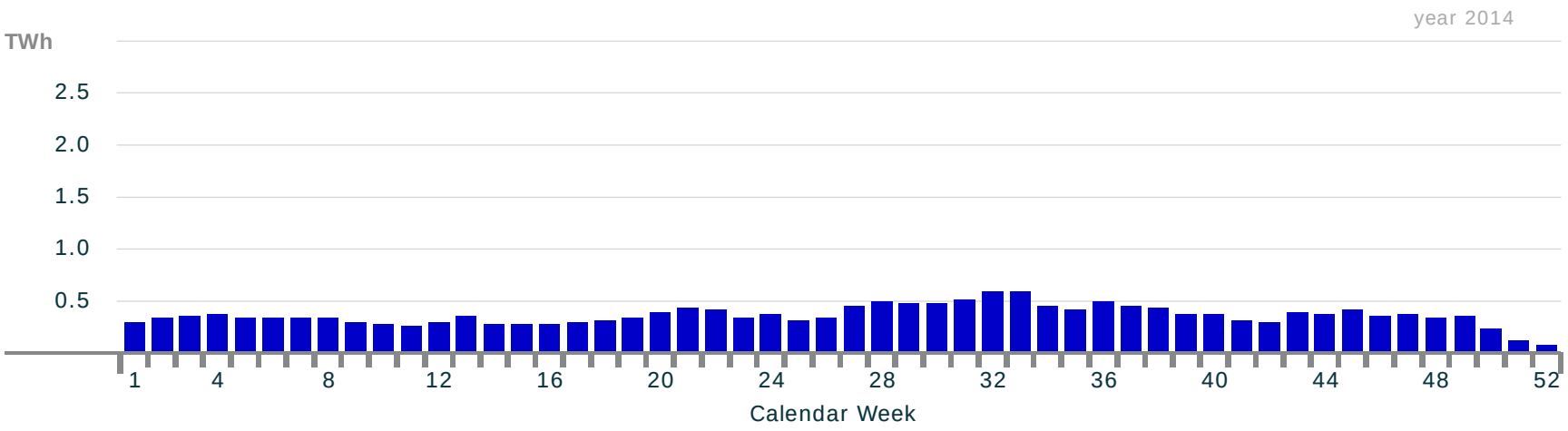


Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Weekly Production Hydro

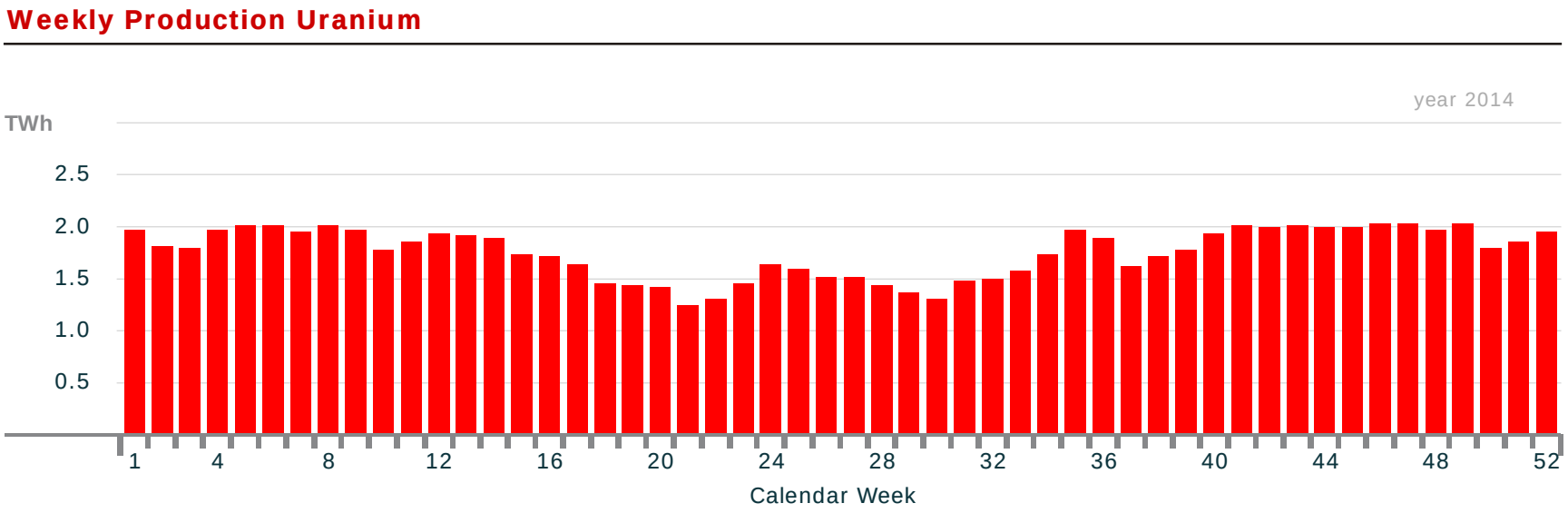
Weekly Production Run of River



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

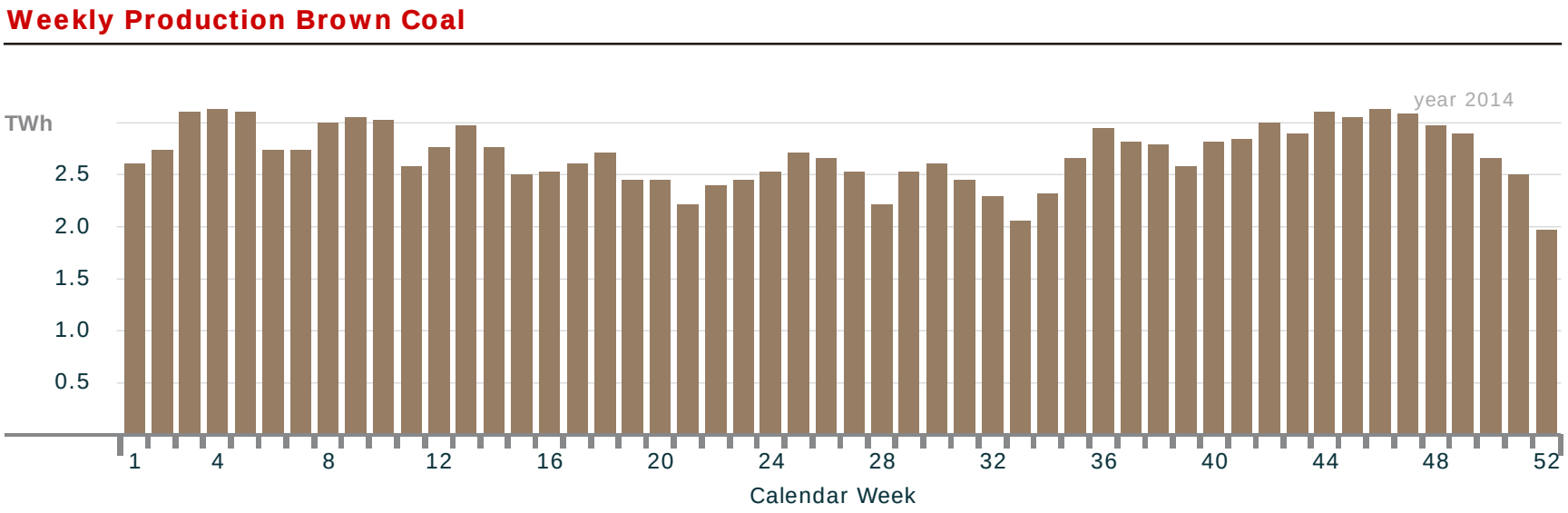
Weekly Production Uranium



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

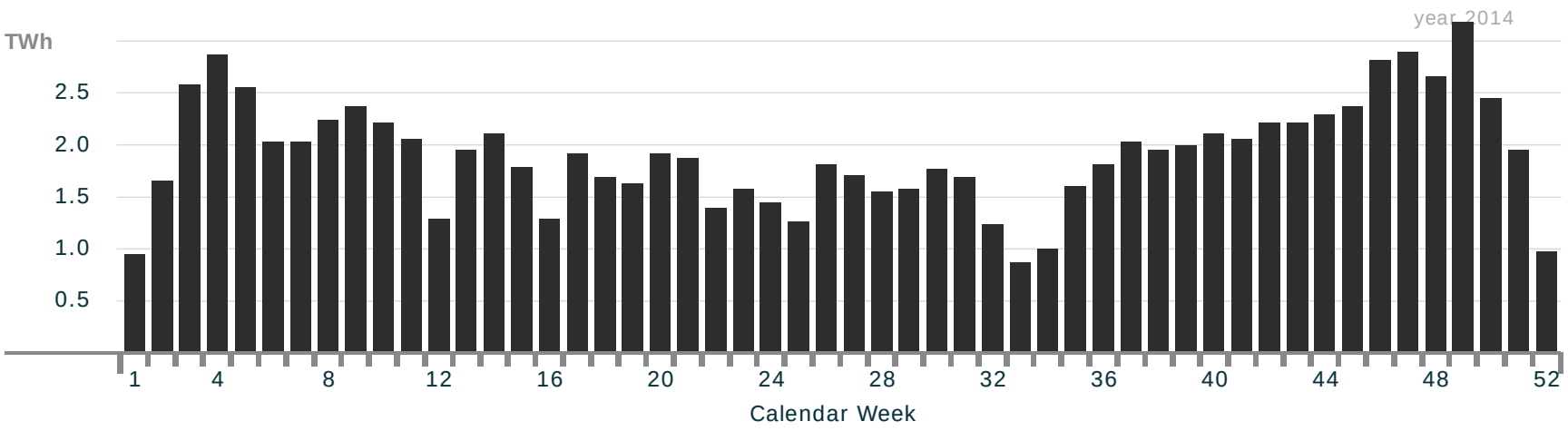
Weekly Production Brown Coal



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

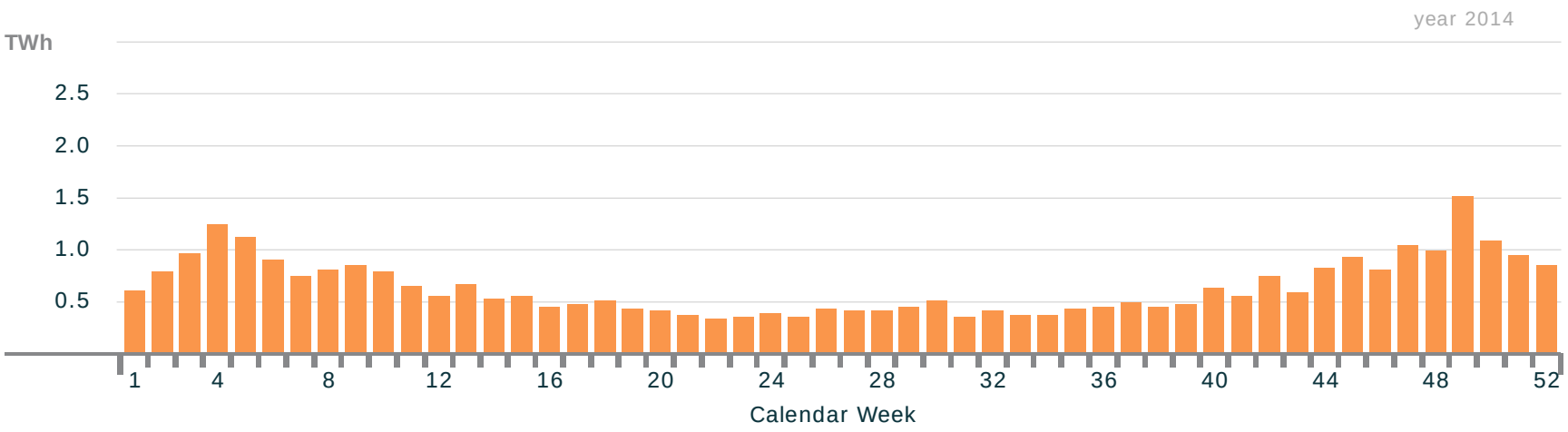
Weekly Production Hard Coal



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

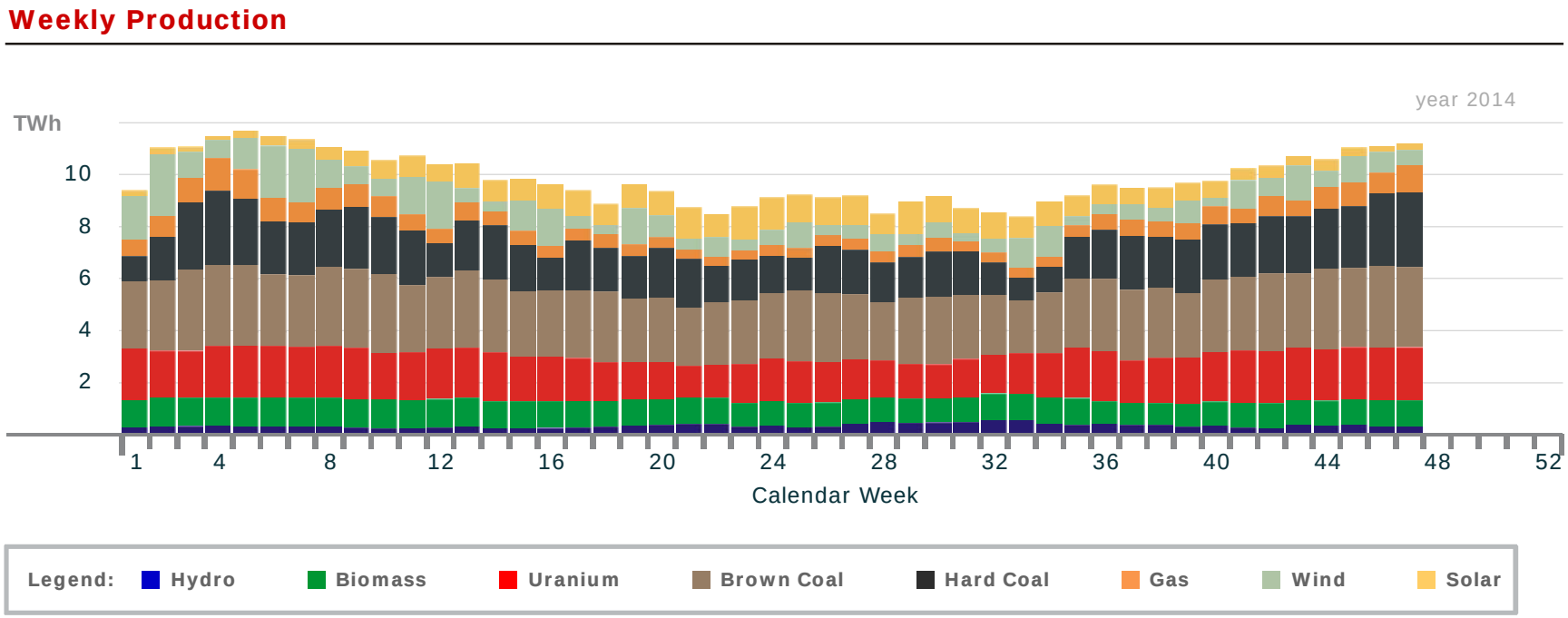
Weekly Production Gas



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Weekly Production



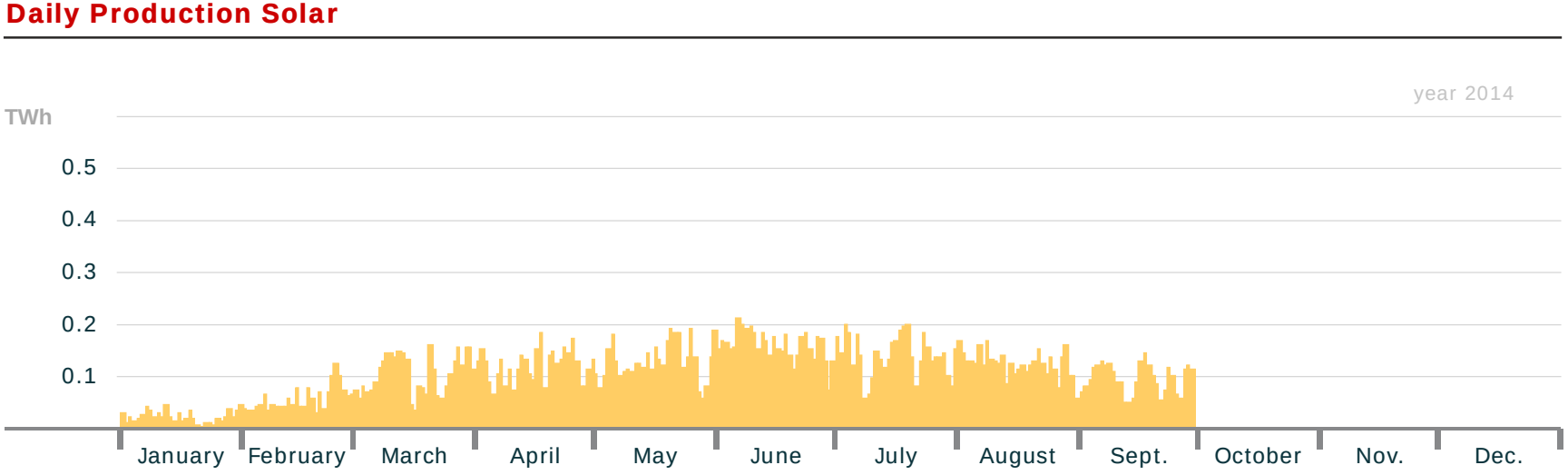
Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
- Weekly power curves
- Exemplary daily power curves

Daily production Solar

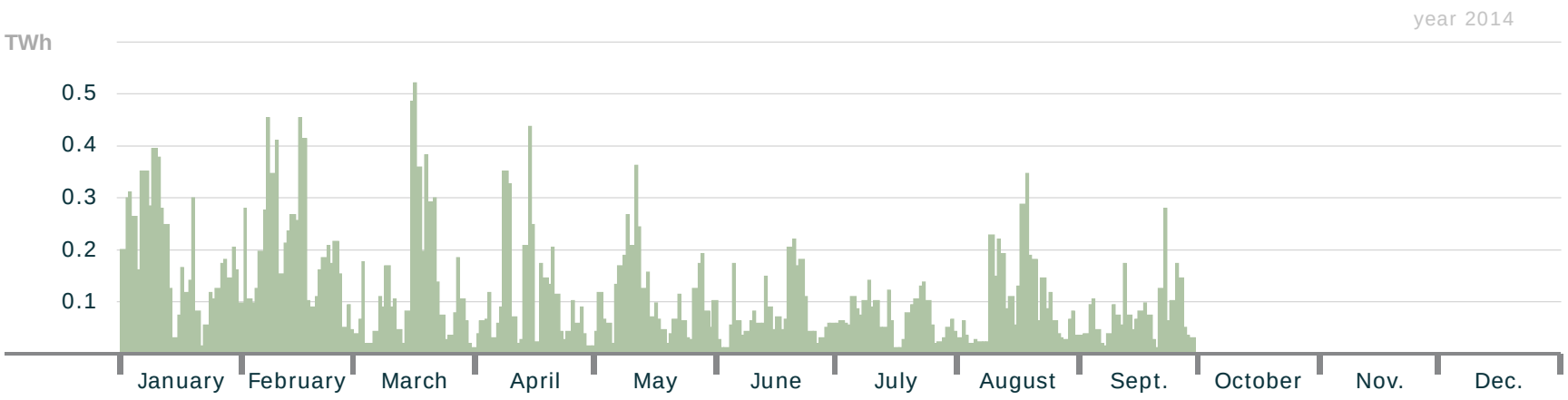


- The maximal daily production was 0.212 TWh at 06.06.2014
- The minimal daily production was 0.006 TWh at 21.01.2014

Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Daily production Wind

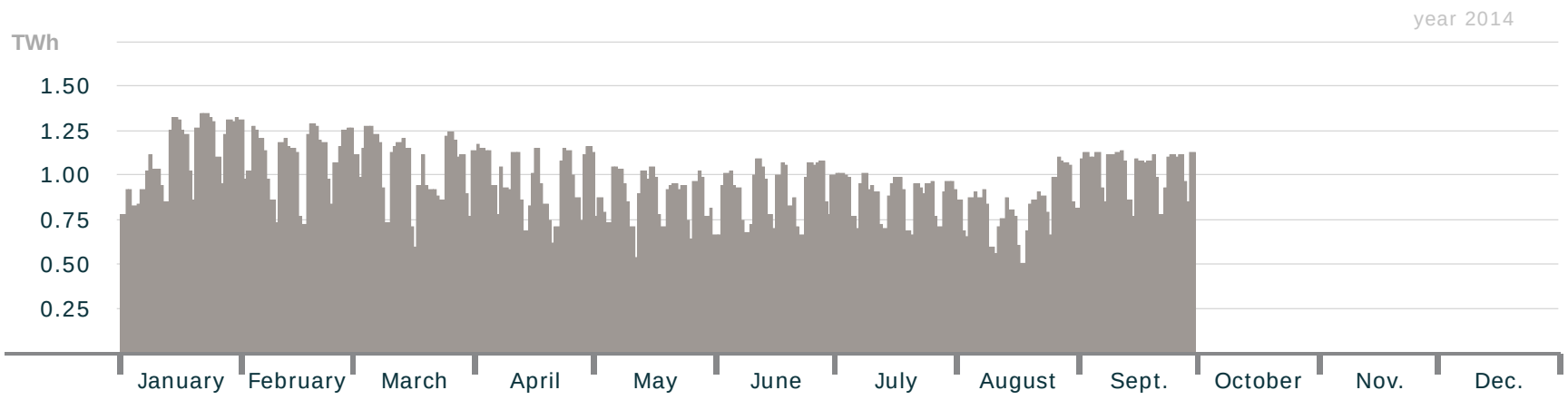


- The maximal daily production was 0.543 TWh at 16.03.2014
- The minimal daily production was 0.011 TWh at 16.07.2014

Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Daily production Conventional > 100 MW

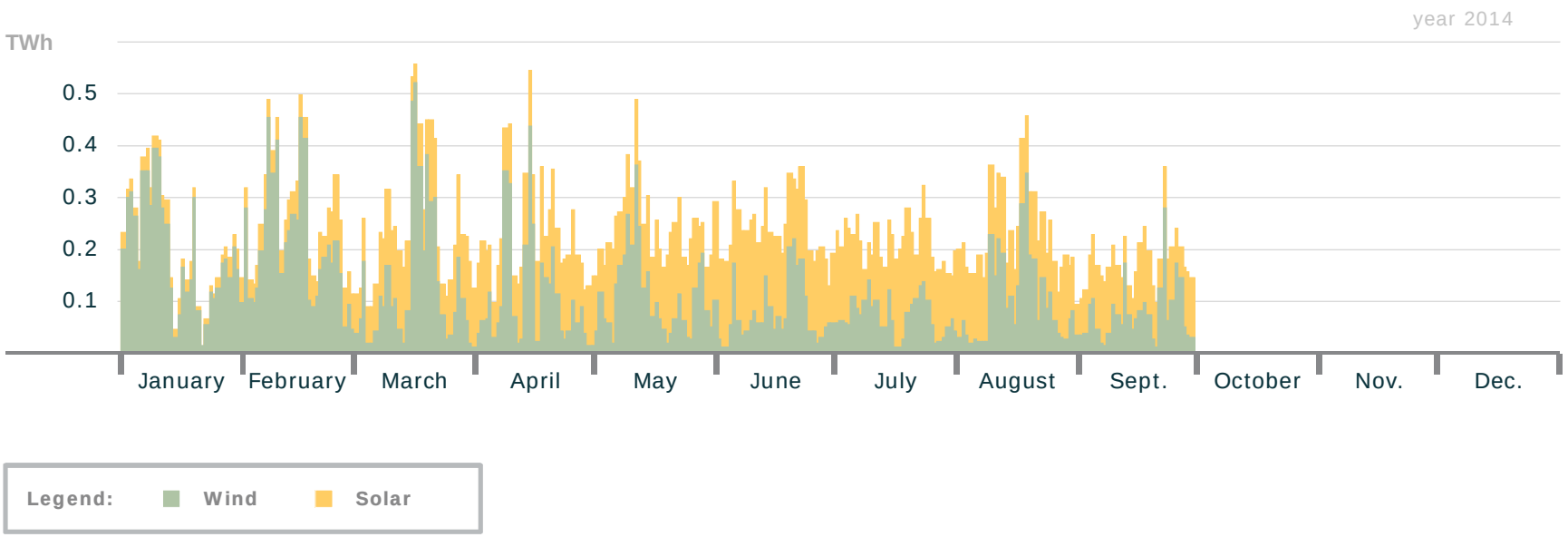


- The maximal daily production from conventional sources greater 100 MW was 1.35 TWh at 22.01.2014
- The minimal daily production from conventional sources greater 100 MW was 0.51 TWh at 17.08.2014

Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Daily production Solar and Wind

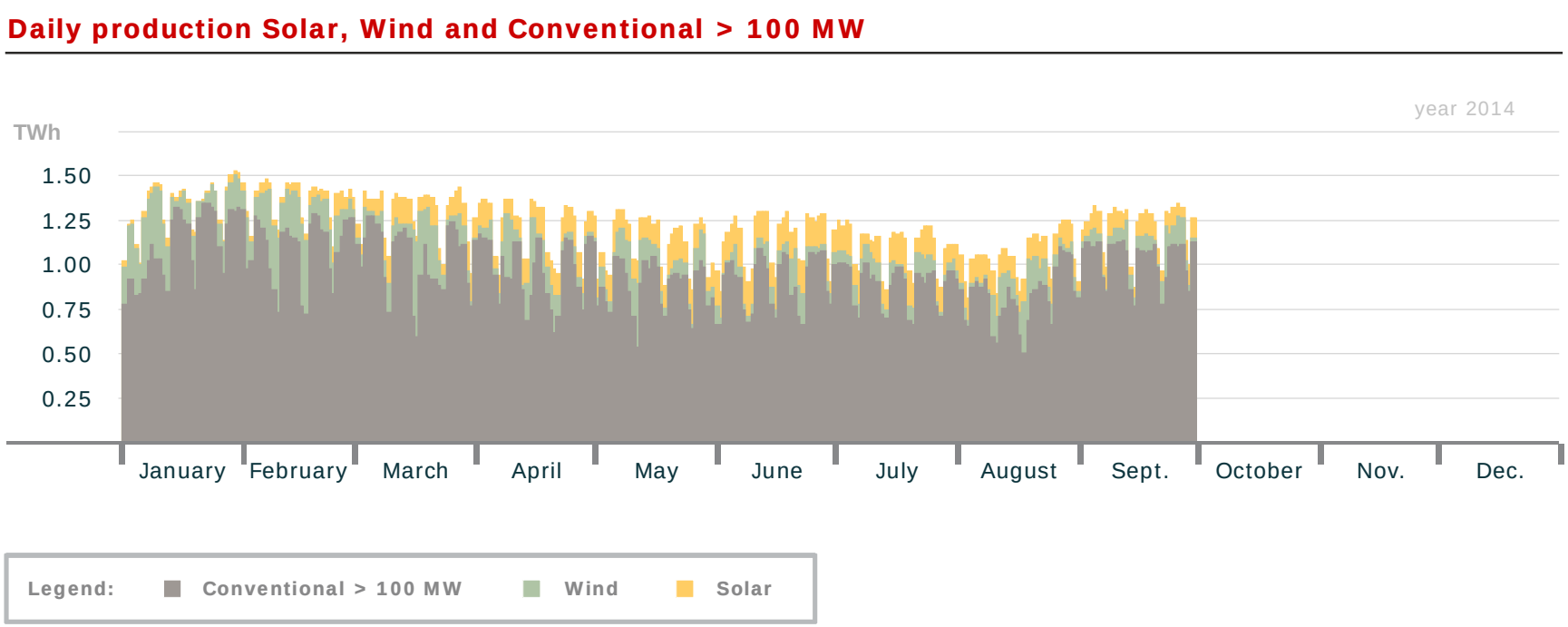


- The maximal daily sum of Solar and Wind production was 0.58 TWh at 16.03.2014
- The minimal daily sum of Solar and Wind production was 0.022 TWh at 21.01.2014

Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Daily production Solar, Wind and Conventional



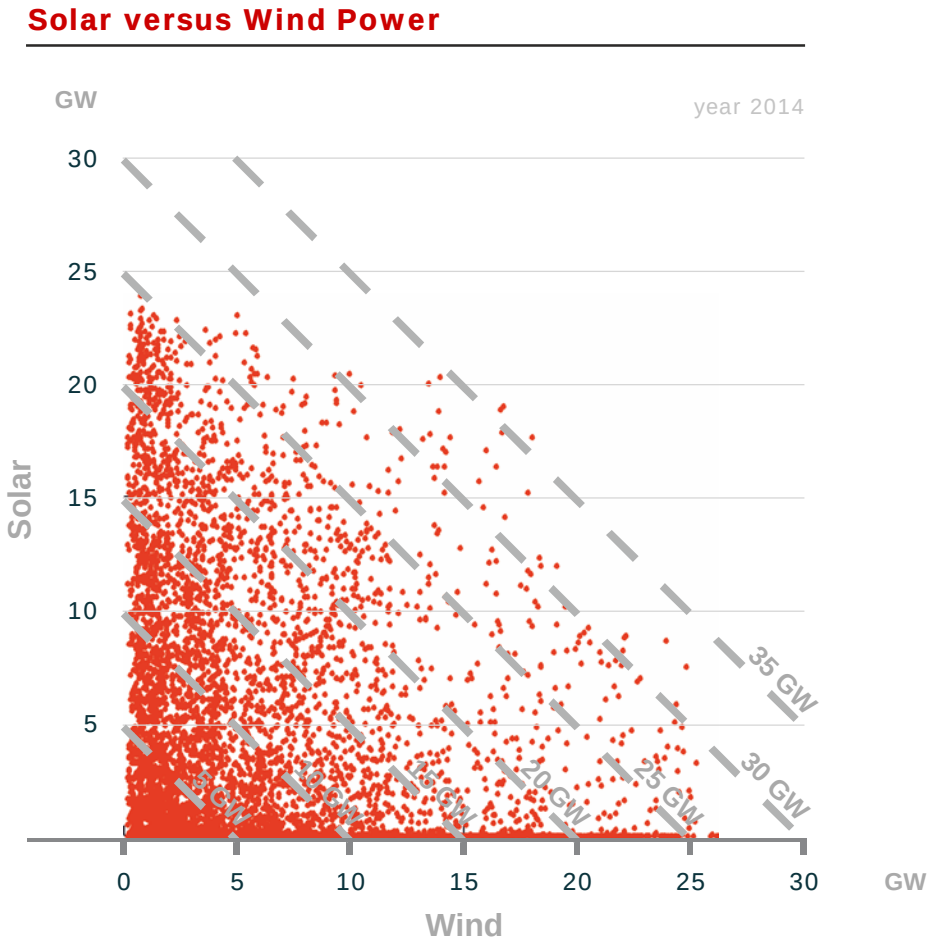
Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
- Weekly power curves
- Exemplary daily power curves

Power Solar versus Wind

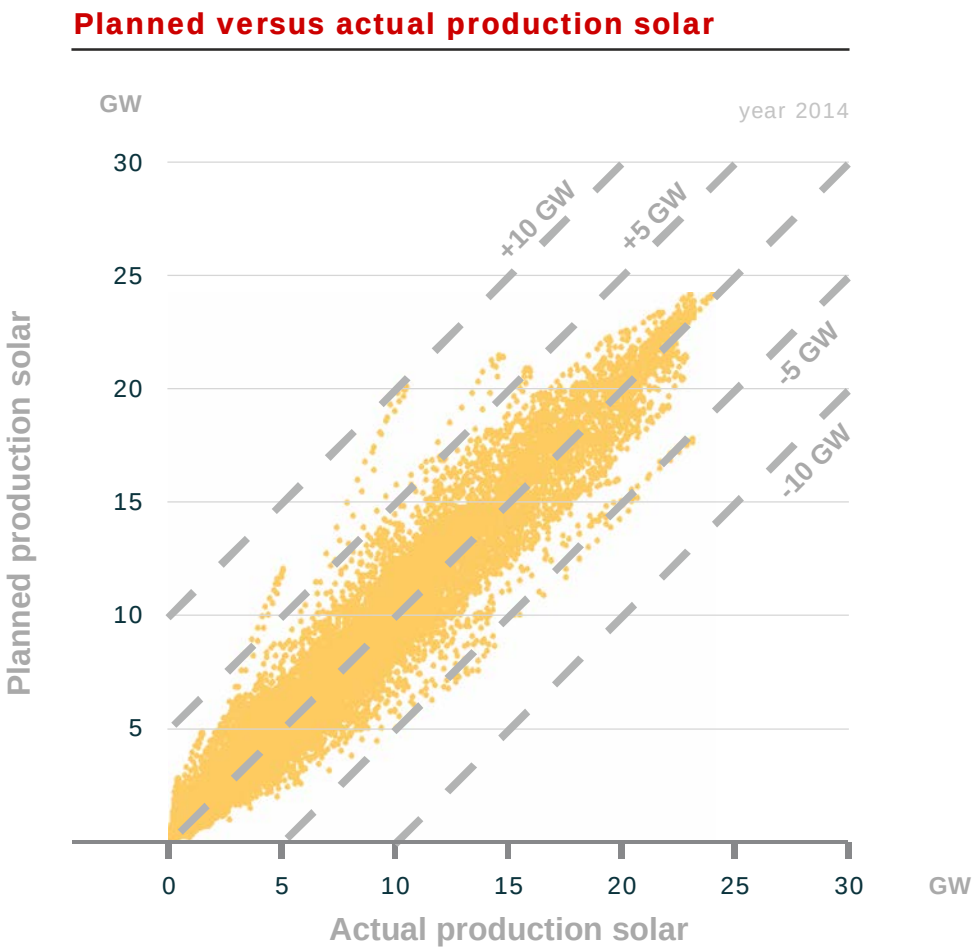


- The maximal sum of Solar and Wind power is smaller than the installed power of solar or wind

Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

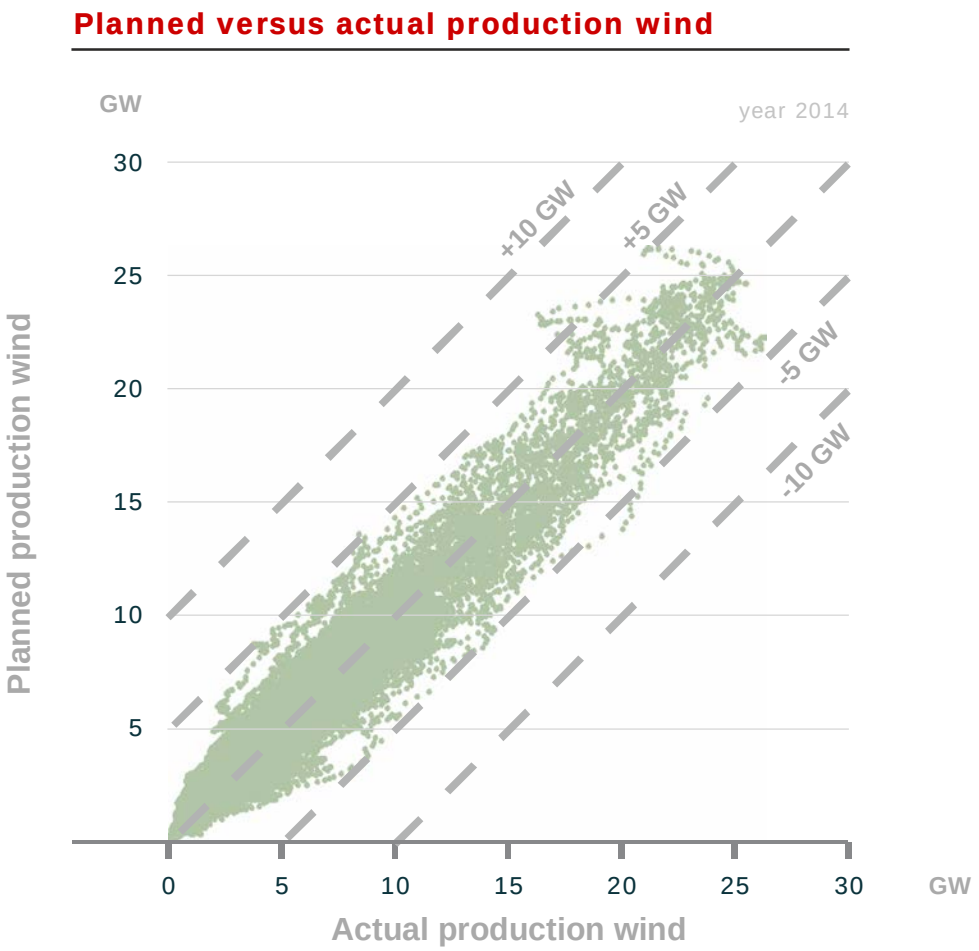
Planned versus actual production Solar



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

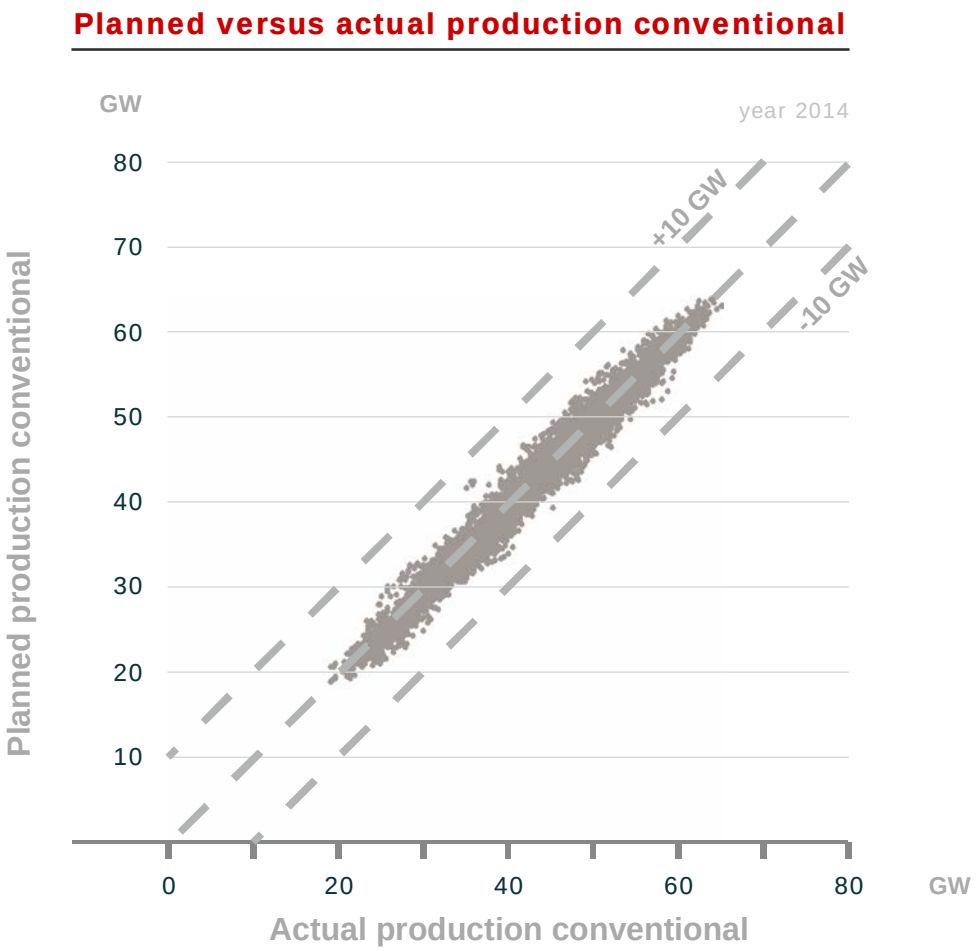
Planned versus actual production Wind



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

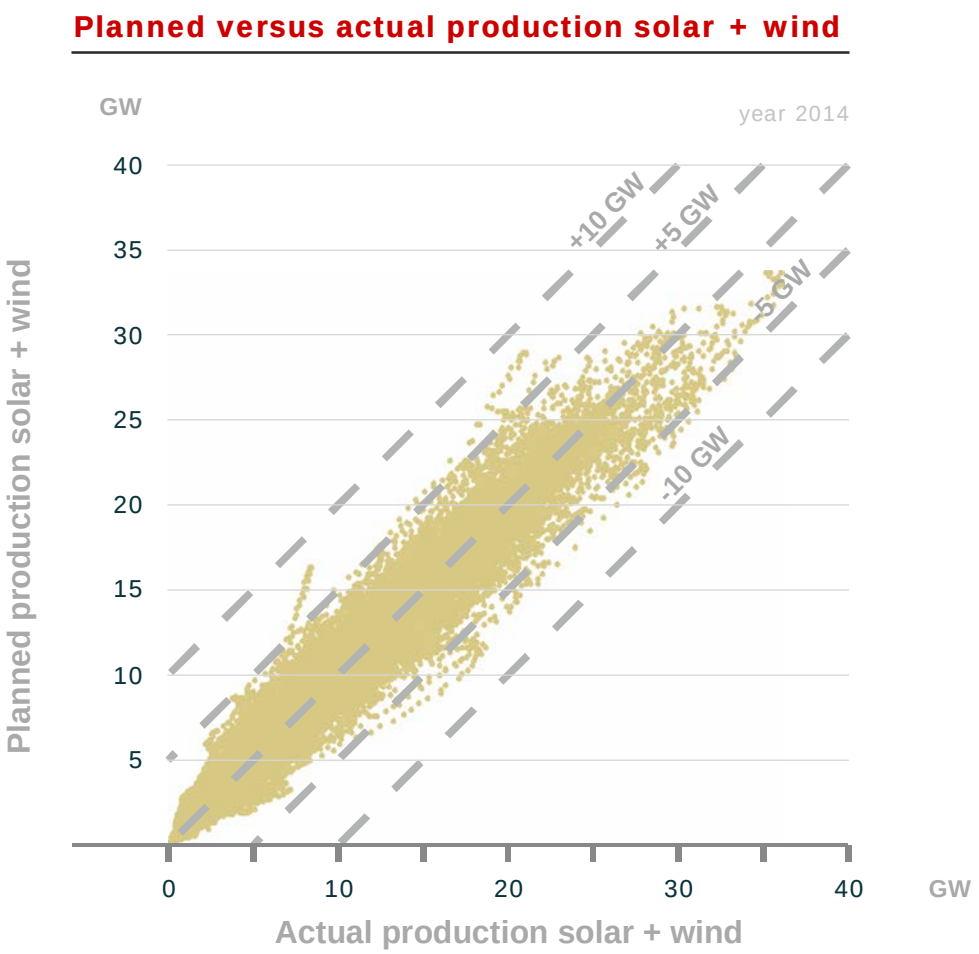
Planned versus actual production Conventional



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Planned versus actual production Solar + Wind

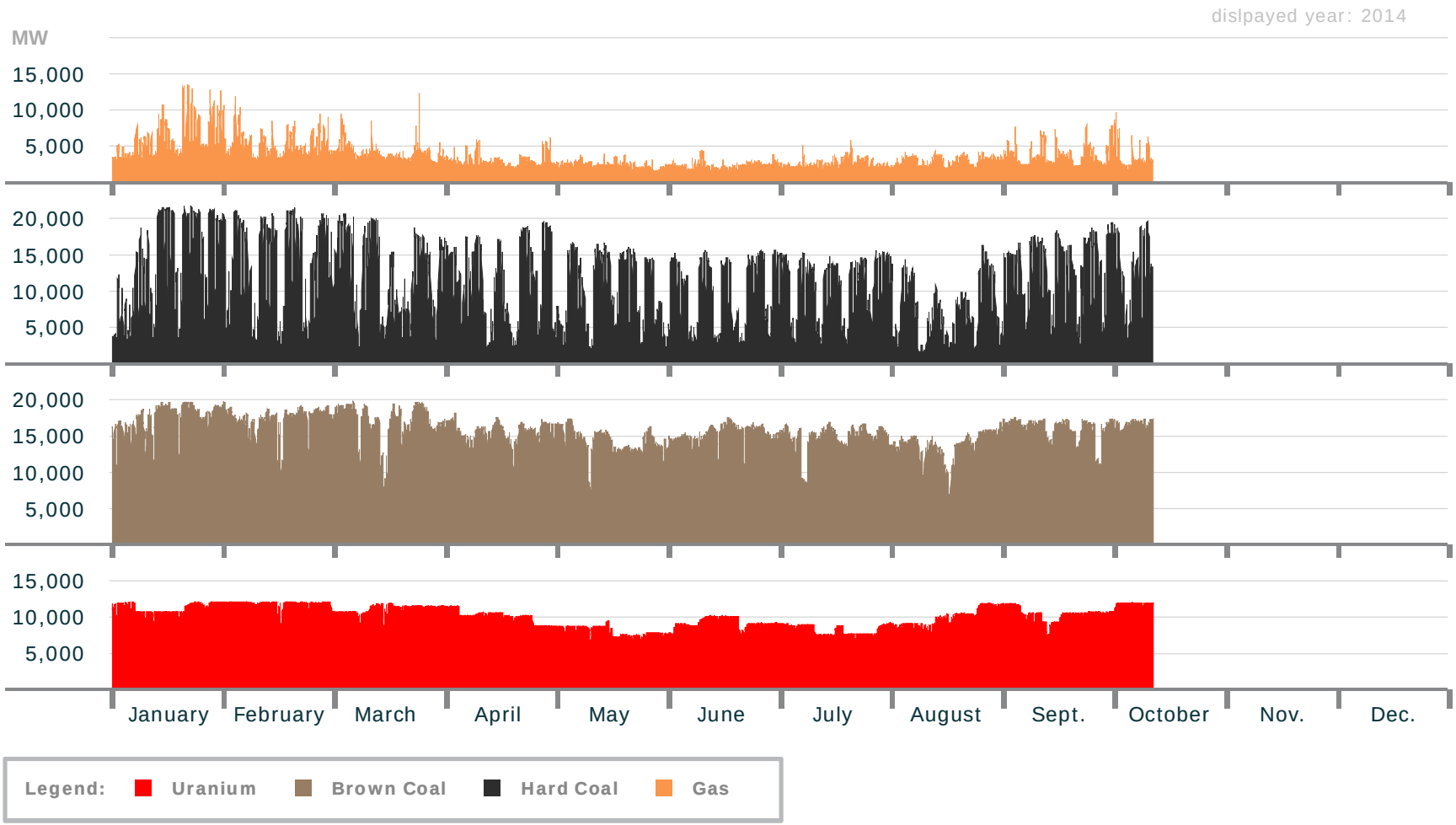


Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production: Uranium, Coal and Gas

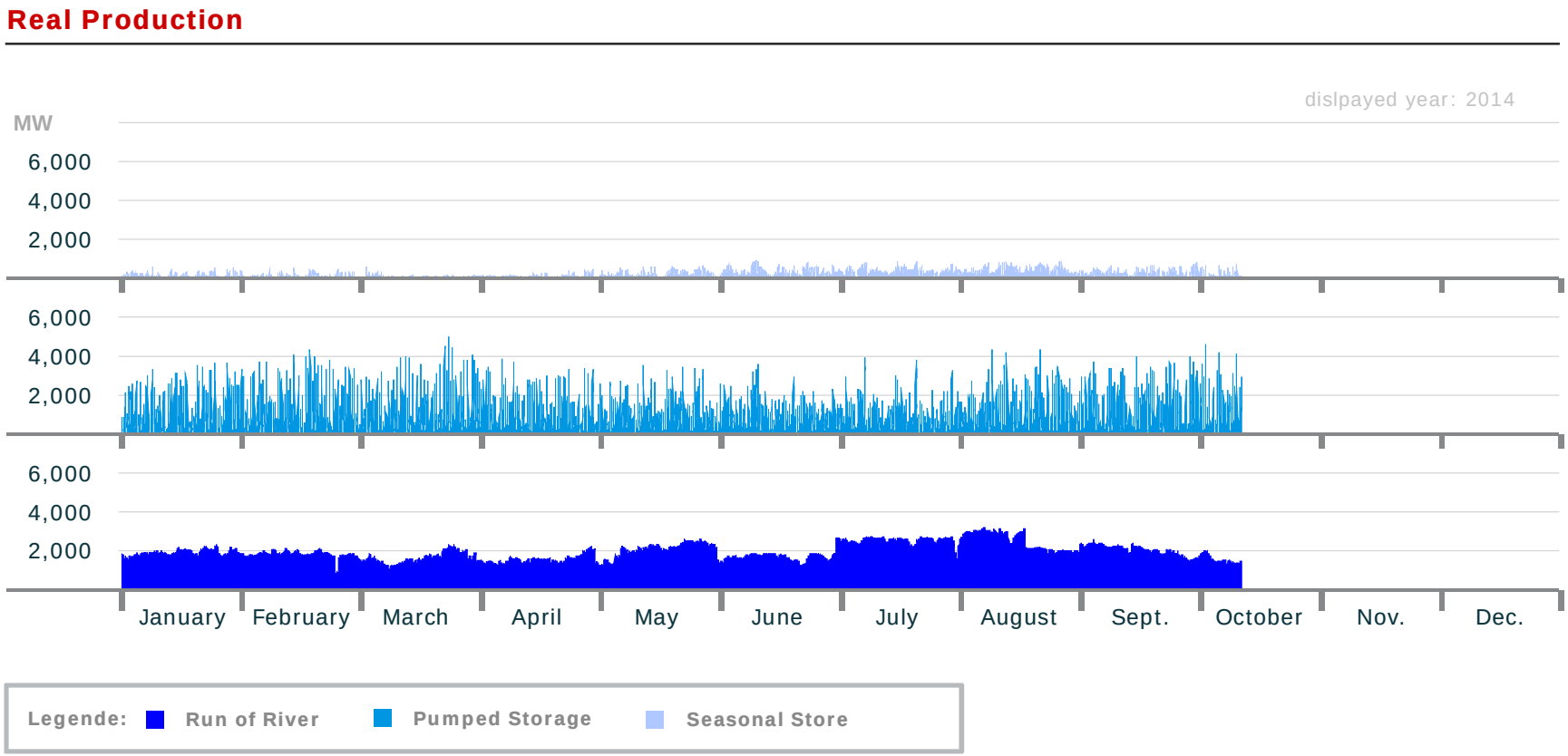
Real Production



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

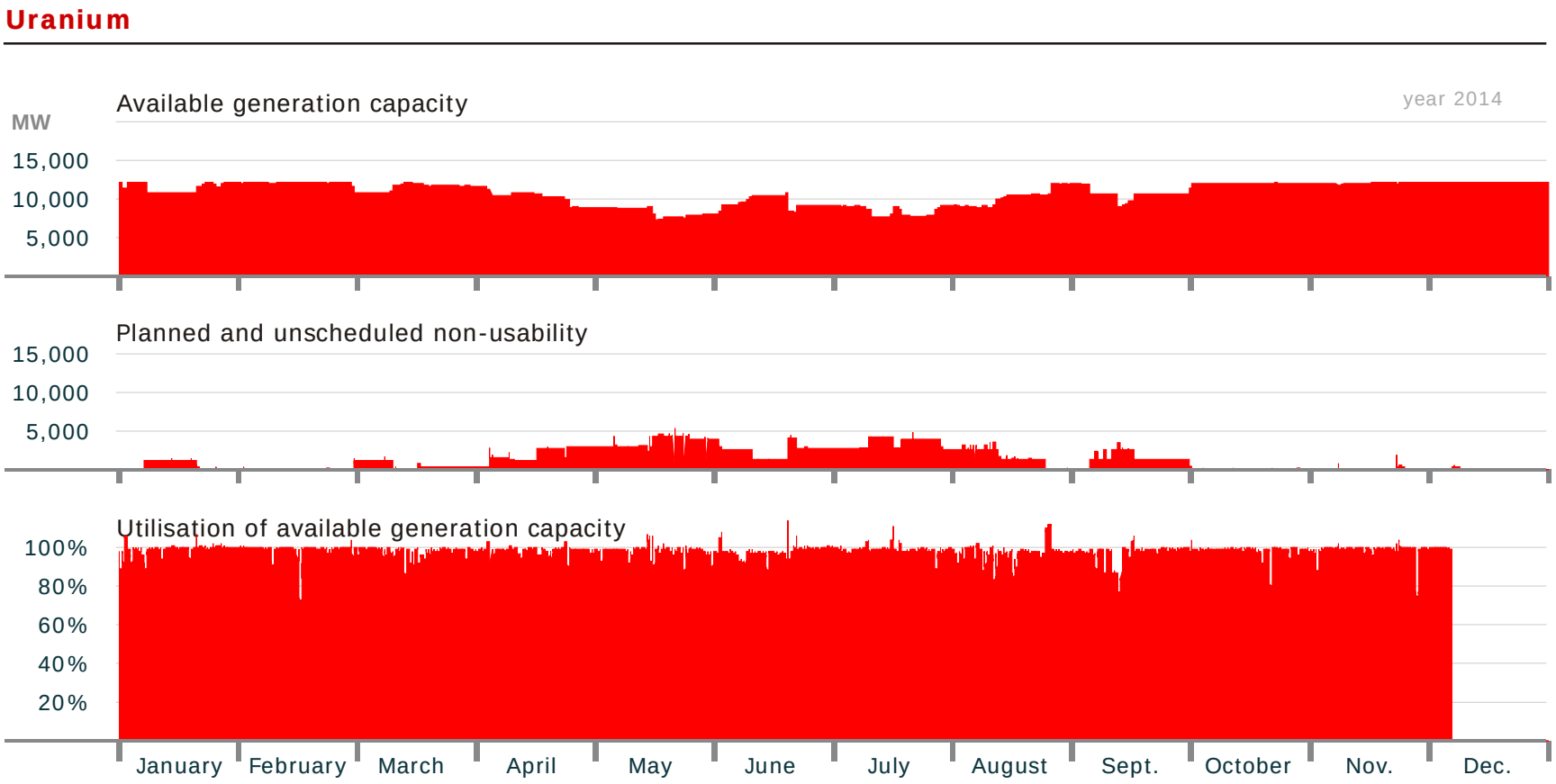
Electricity Production: Run of River, Pumped Storage and Seasonal Storage



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Uranium: Available capacity, non-usability and utilisation

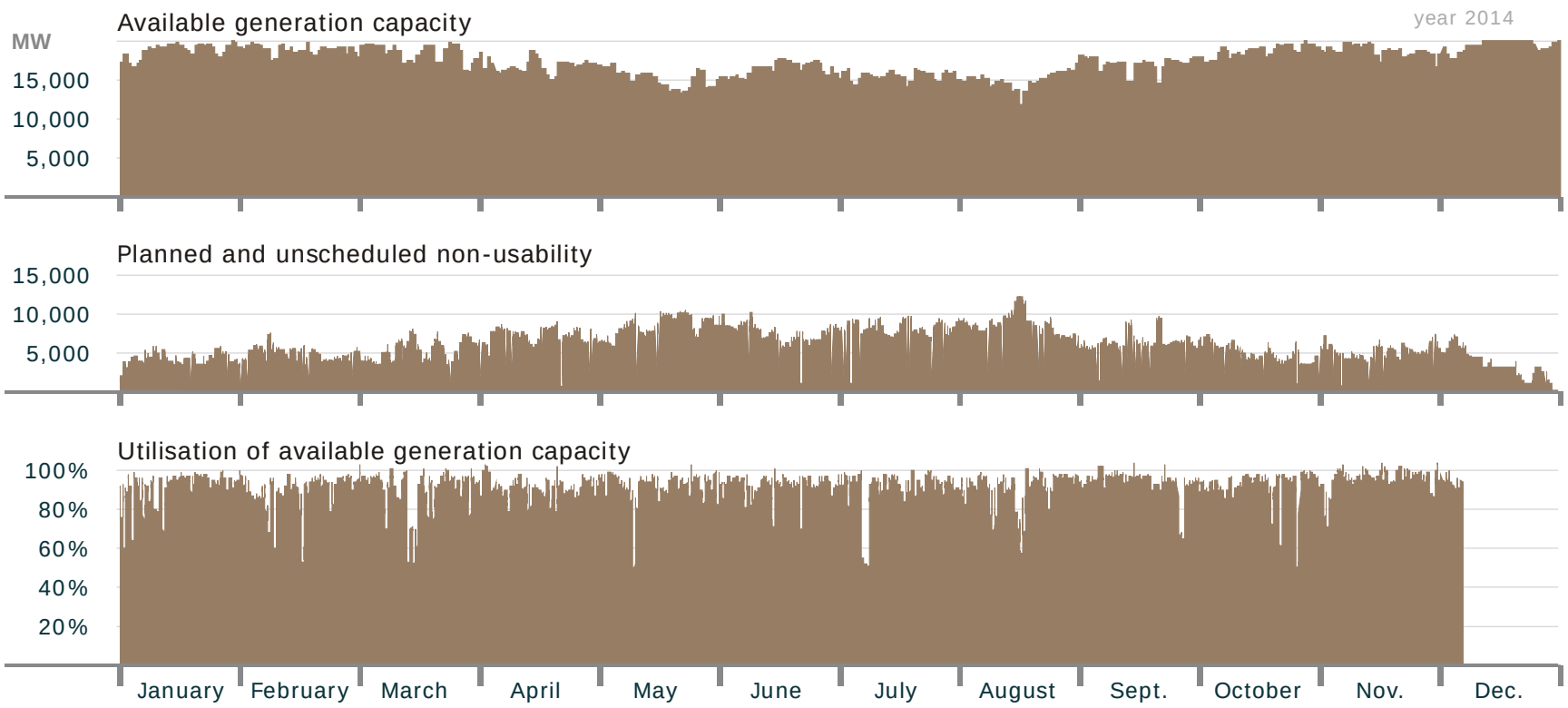


Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

Brown Coal: Available capacity, non-usability and utilisation

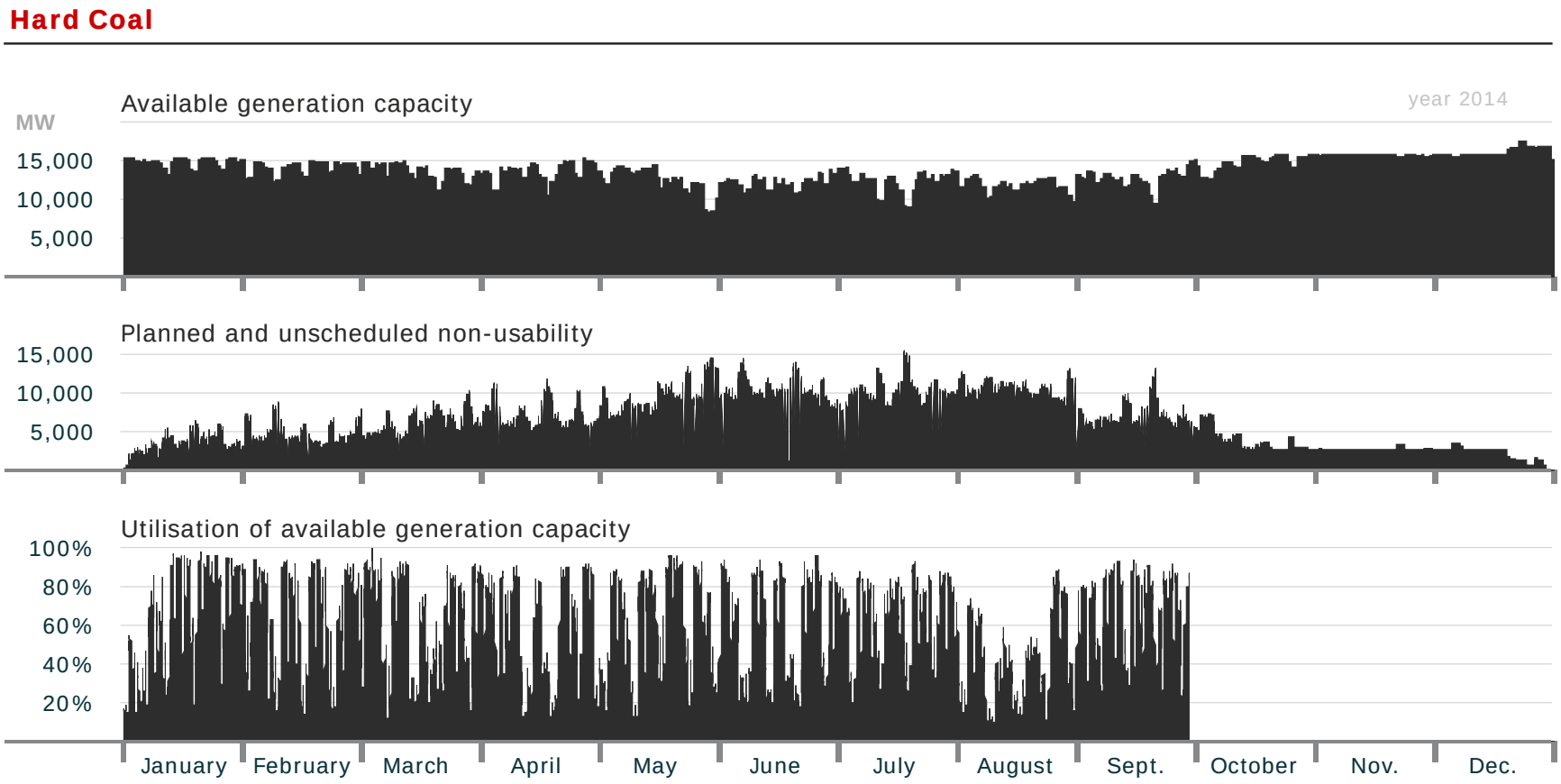
Brown Coal



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

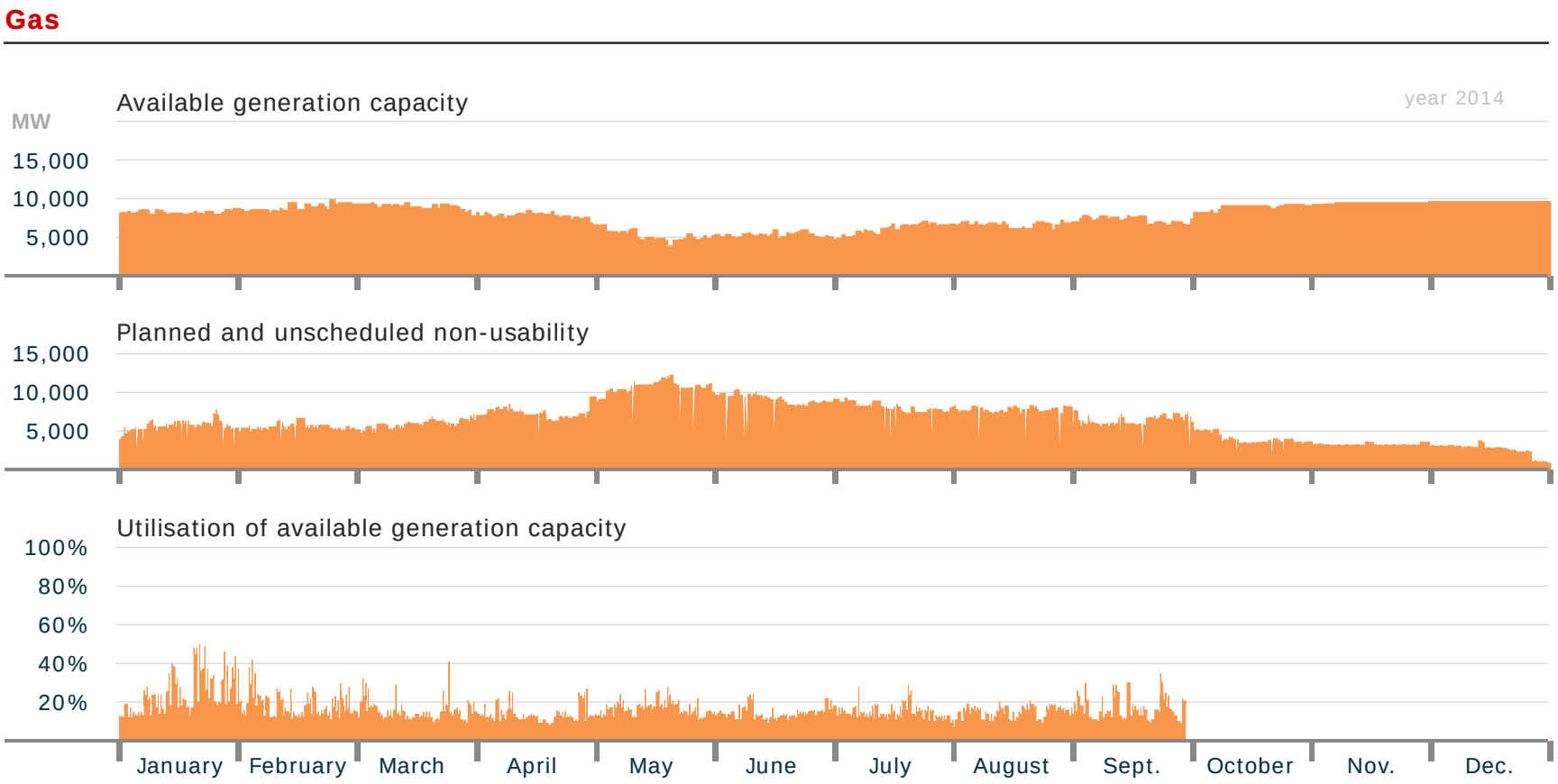
Hard Coal: Available capacity, non-usability and utilisation



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

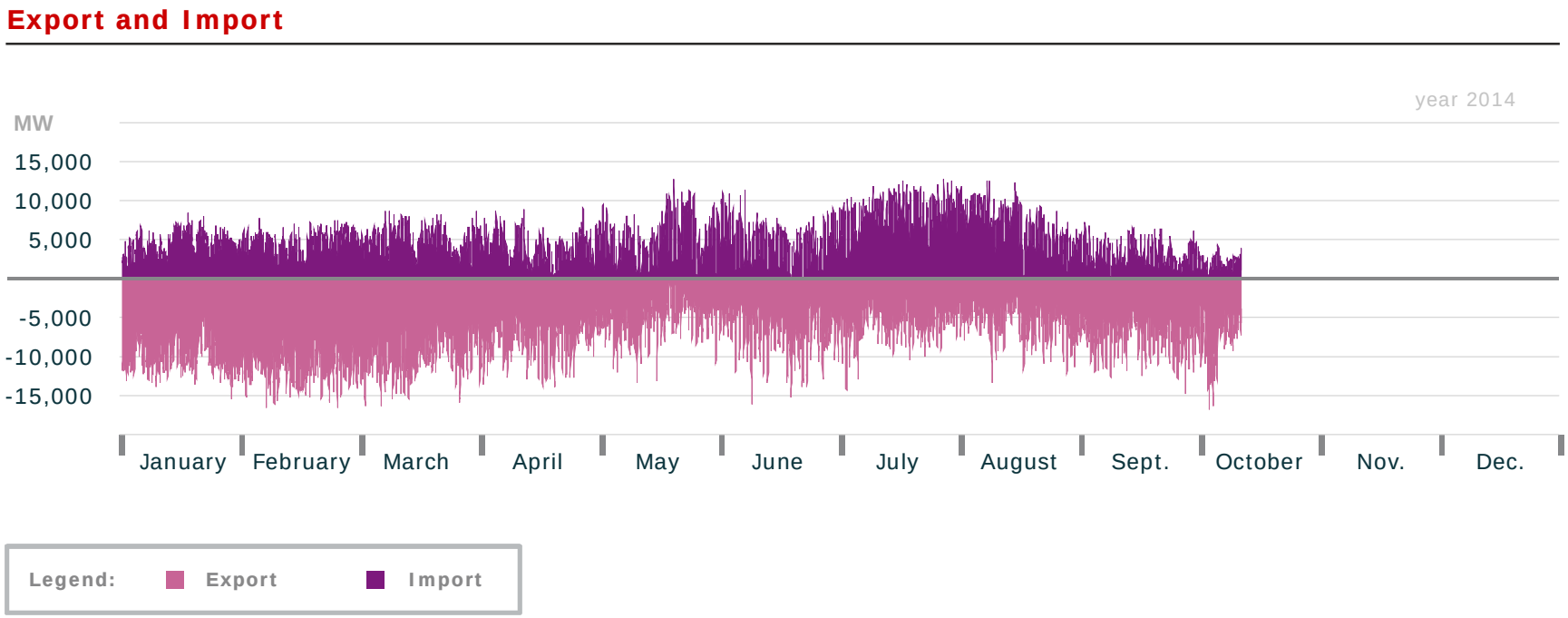
Gas: Available capacity, non-usability and utilisation



Graph: B. Burger, Fraunhofer ISE; data: EEX Transparency Platform

Fraunhofer ISE

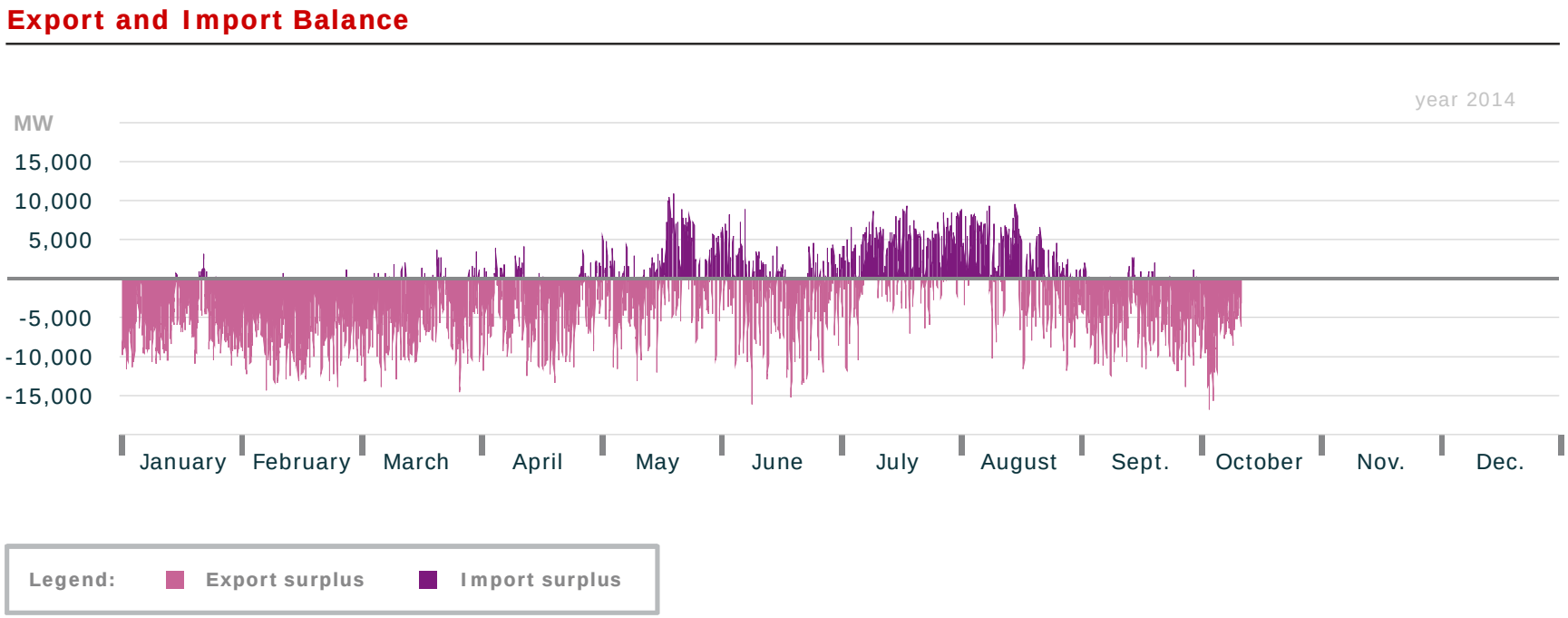
Electricity Export and Import



Graph: B. Burger, Fraunhofer ISE; data: Entso-e

Fraunhofer ISE

Electricity Export and Import Balance



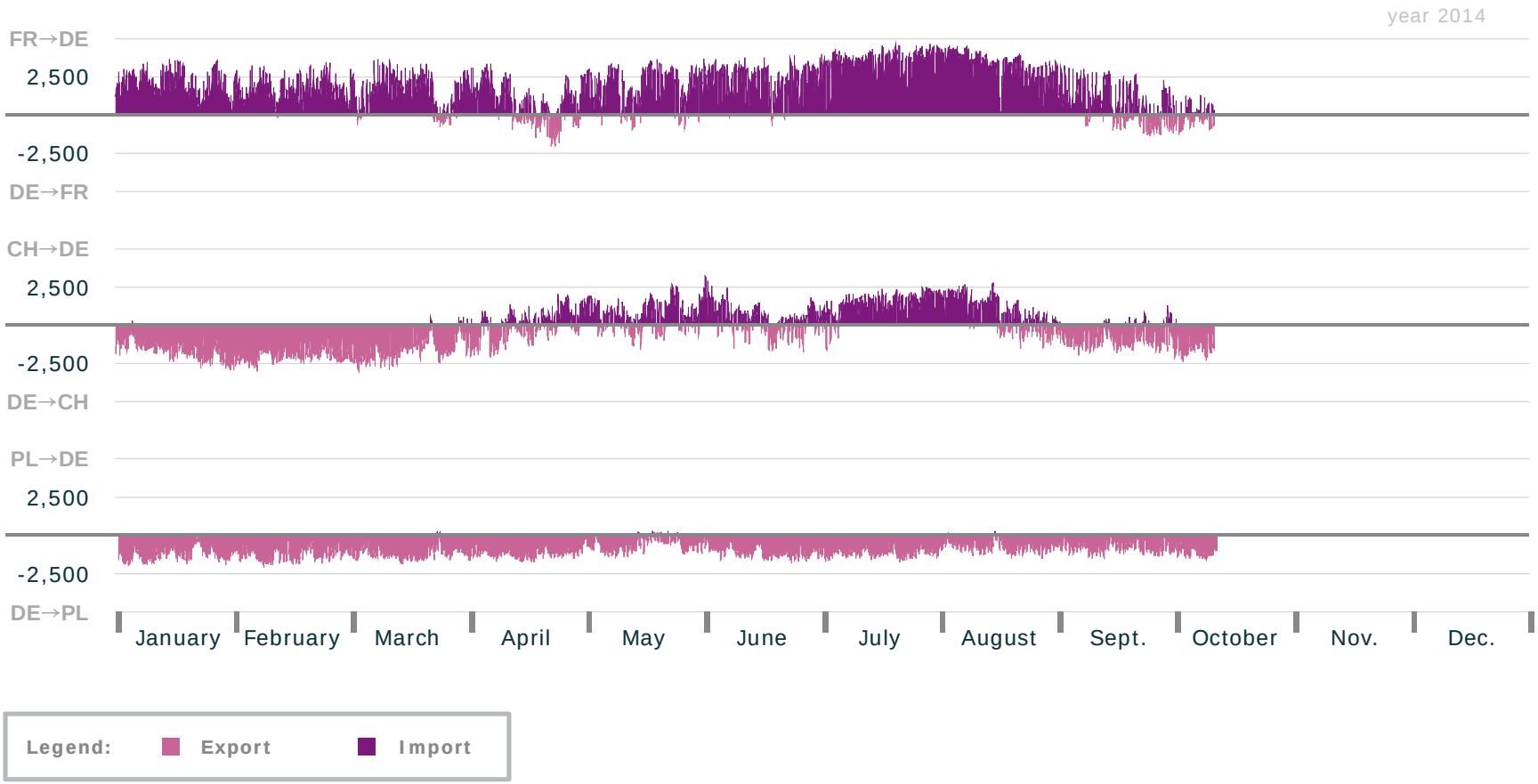
Graph: B. Burger, Fraunhofer ISE; data: Entso-e

Fraunhofer ISE

Electricity Export and Import

France, Switzerland and Poland

Export and Import



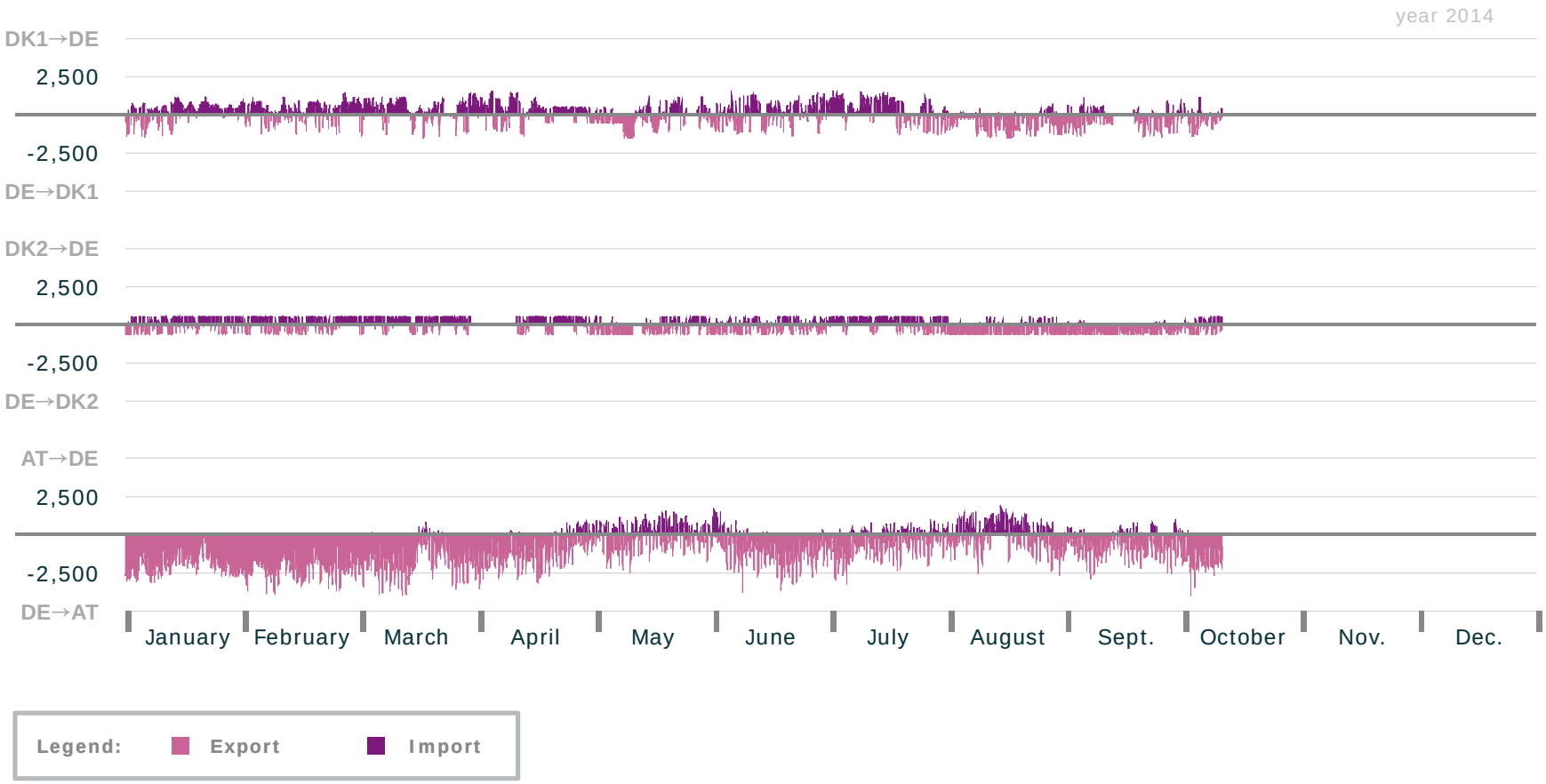
Graph: B. Burger, Fraunhofer ISE; data: Entso-e

Fraunhofer ISE

Electricity Export and Import

Denmark and Austria

Export and Import



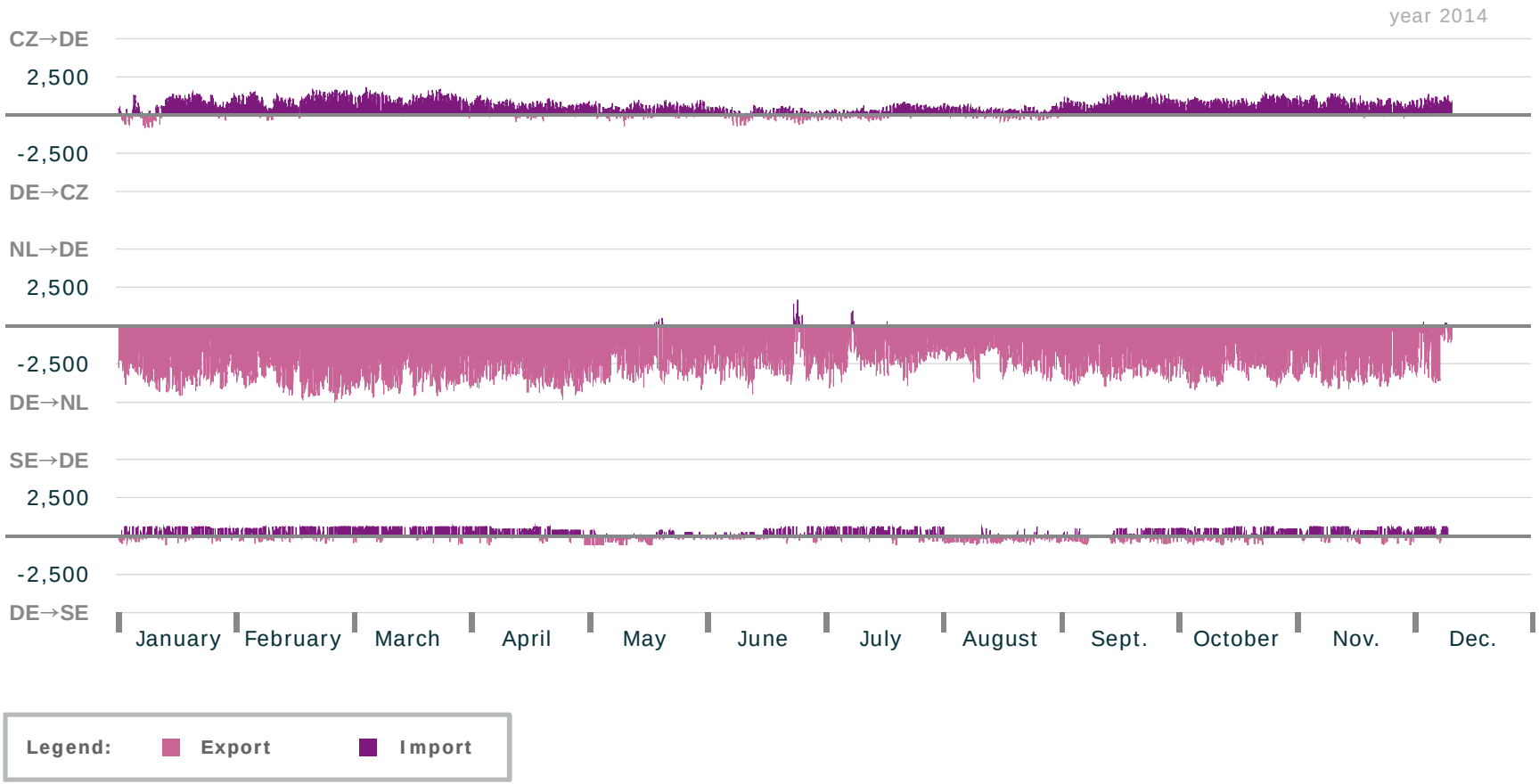
Graph: B. Burger, Fraunhofer ISE; data: Entso-e

Fraunhofer ISE

Electricity Export and Import

Czech Republic, the Netherlands and Sweden

Export and Import



Graph: B. Burger, Fraunhofer ISE; data: Entso-e

Fraunhofer ISE

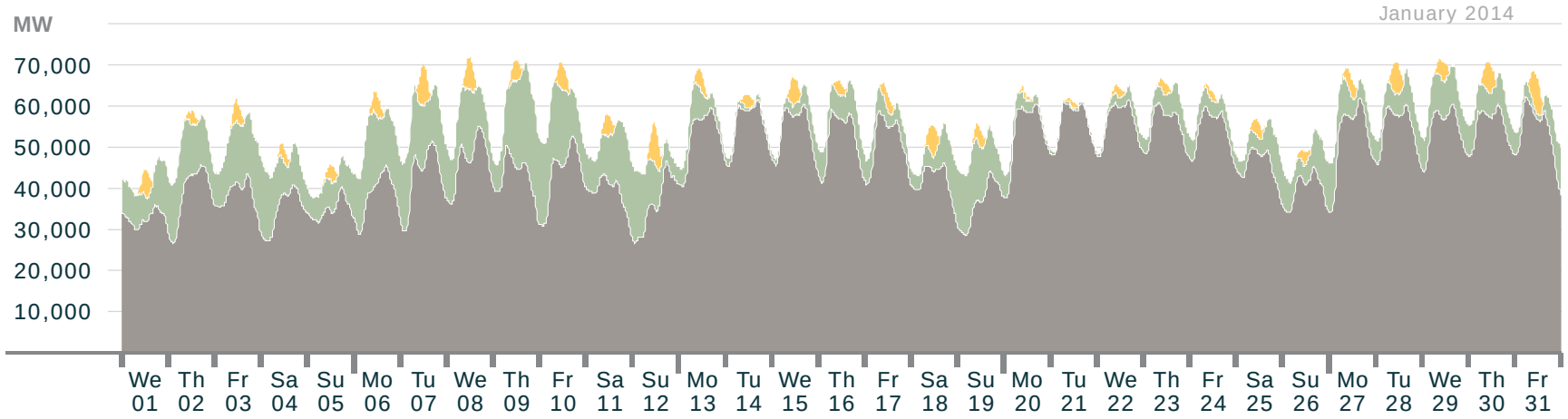
AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
  - Monthly power curves for conventional, wind and solar
  - Monthly power curves with export and import
  - Detailed monthly power curves
  - Diurnal power courses
- Weekly power curves

Electricity Production in Germany

January 2014

Actual production



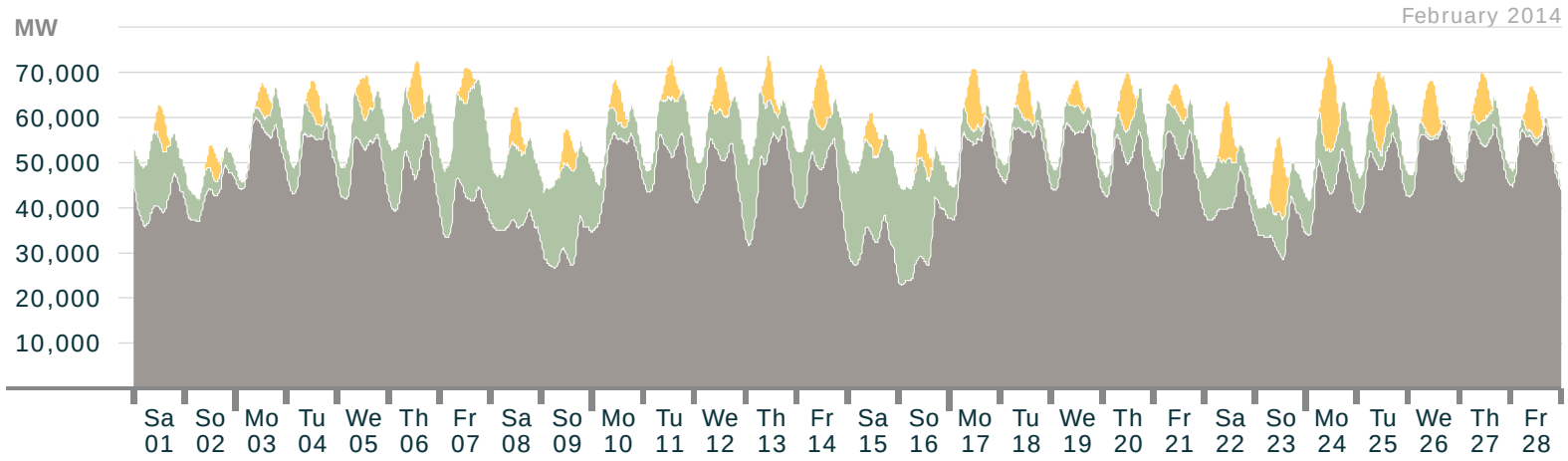
	max. power	date max. power	monthly energy
Solar	10.1 GW	07.01., 12:30 (+1:00)	0.75 TWh
Wind	25.0 GW	09.01., 18:30 (+1:00)	6.2 TWh
Conventional > 100 MW	62.2 GW	31.01., 08:00 (+1:00)	34.7 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Electricity Production in Germany
February 2014

Actual production



	max. power	date max. power	monthly energy
Solar	20.4 GW	24.02., 12:00 (+1:00)	1.64 TWh
Wind	25.6 GW	07.02., 16:00 (+1:00)	6.14 TWh
Conventional > 100 MW	60.4 GW	17.02., 18:00 (+1:00)	30.8 TWh

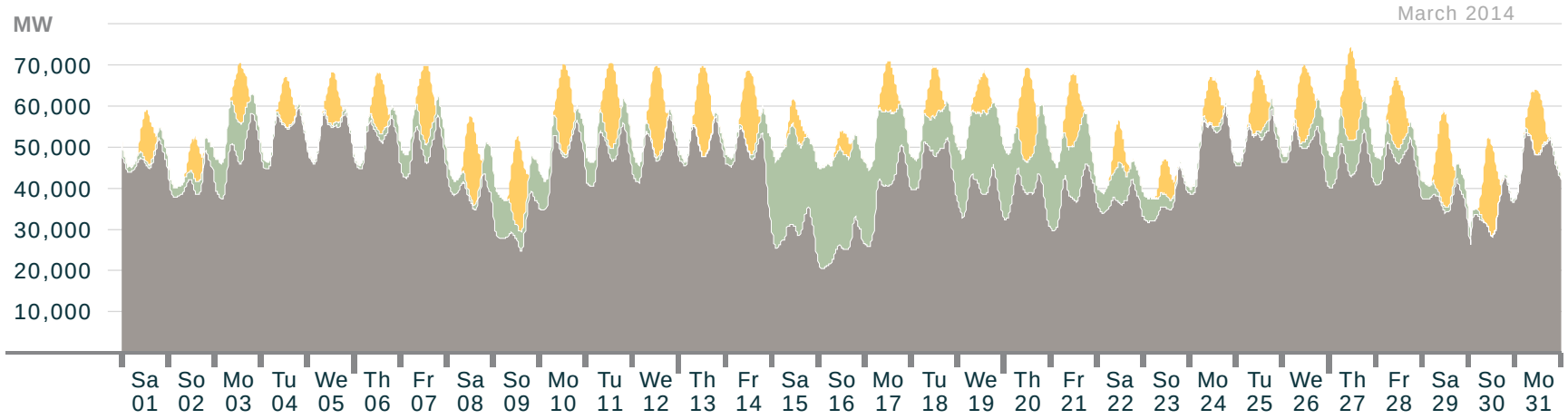
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Electricity Production in Germany

March 2014

Actual production



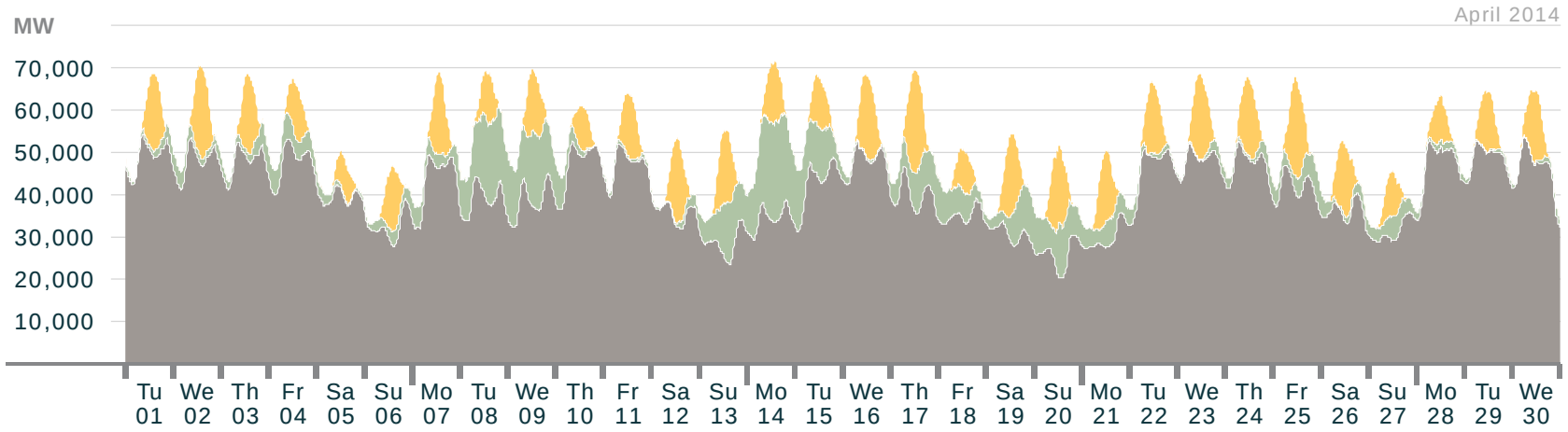
	max. power	date max. power	monthly energy
Solar	23.0 GW	20.03., 12:15 (+1:00)	3.31 TWh
Wind	24.8 GW	16.03., 02:30 (+1:00)	4.59 TWh
Conventional > 100 MW	60.3 GW	24.03., 19:00 (+1:00)	32.4 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Electricity Production in Germany
April 2014

Actual production



	max. power	date max. power	monthly energy
Solar	24.2 GW	17.04., 13:00 (+2:00)	3.67 TWh
Wind	23.9 GW	14.04., 14:45 (+2:00)	3.55 TWh
Conventional > 100 MW	54.3 GW	01.04., 08:00 (+2:00)	29.3 TWh

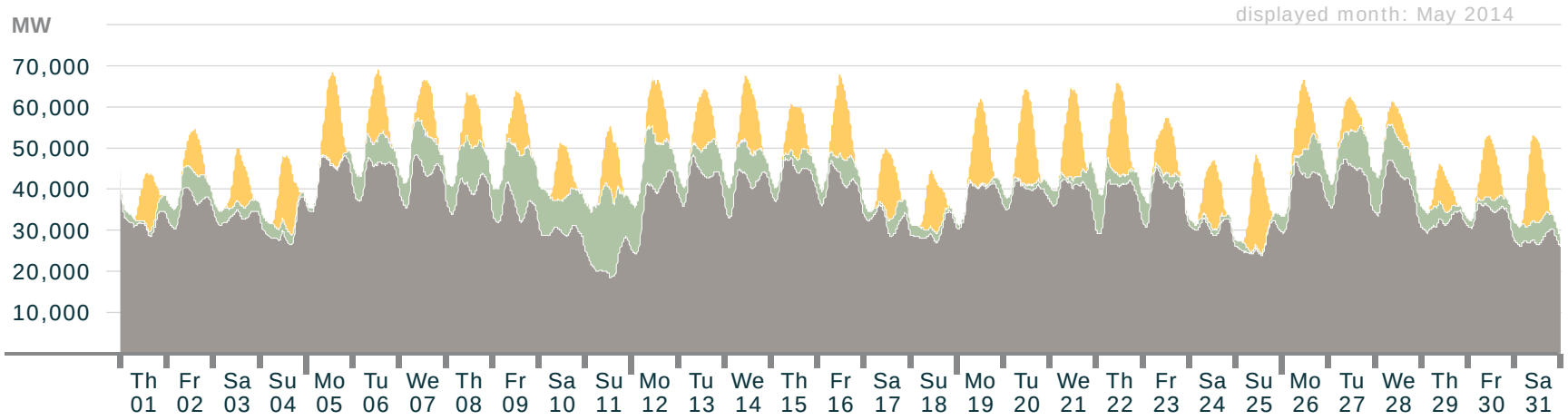
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Electricity Production in Germany

May 2014

Actual production



	max. power	date max. power	monthly energy
Solar	23.5 GW	20.05., 12:45 (+2:00)	4.11 TWh
Wind	21.7 GW	11.05., 13:00 (+2:00)	3.70 TWh
Conventional > 100 MW	48.4 GW	13.05., 08:00 (+2:00)	27.1 TWh

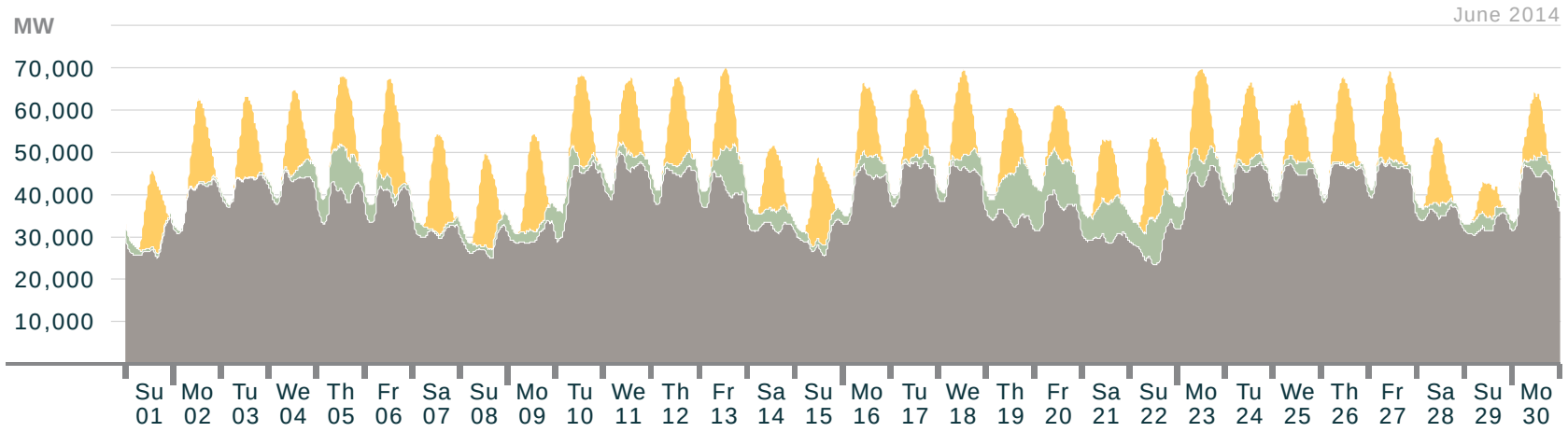
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Electricity Production in Germany

June 2014

Actual production



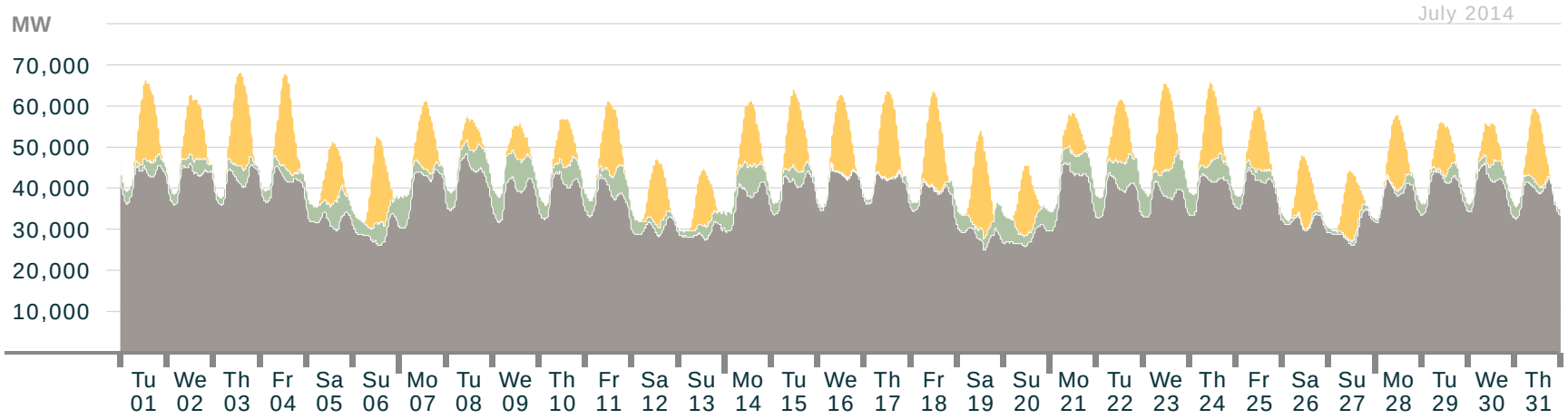
	max. power	date max. power	monthly energy
Solar	24.24 GW	06.06., 13:00 (+2:00)	4.84 TWh
Wind	13.7 GW	19.06., 18:45 (+2:00)	2.47 TWh
Conventional > 100 MW	50.3 GW	11.06., 08:00 (+2:00)	27.4 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Electricity Production in Germany
July 2014

Actual production



	max. power	date max. power	monthly energy
Solar	23.6 GW	19.07., 13:00 (+2:00)	4.42 TWh
Wind	9.5 GW	23.07., 19:15 (+2:00)	2.34 TWh
Conventional > 100 MW	48.6 GW	08.07., 11:00 (+2:00)	27.7 TWh

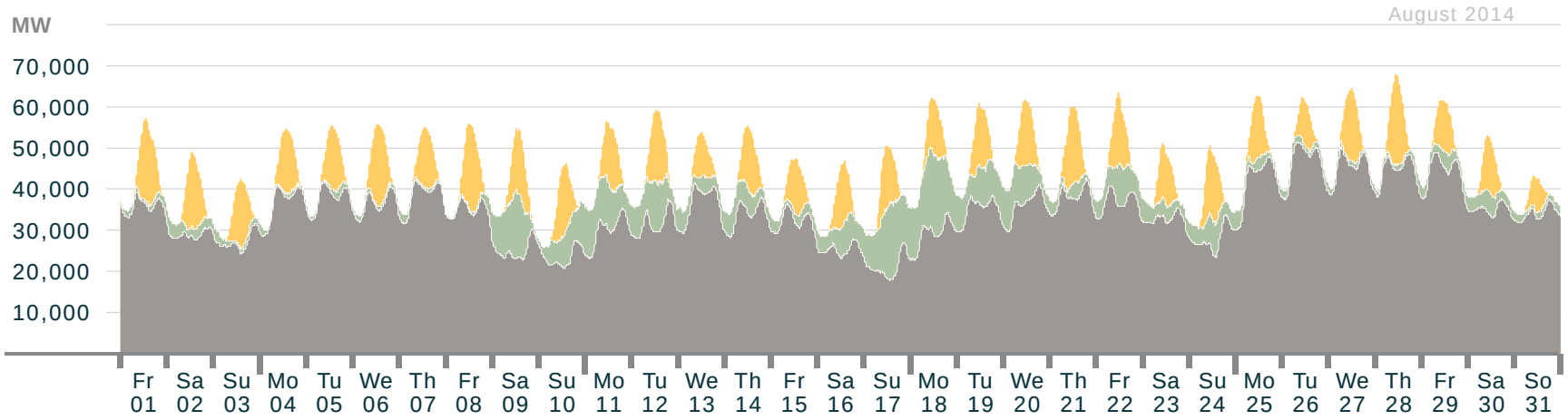
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Electricity Production in Germany

August 2014

Actual production



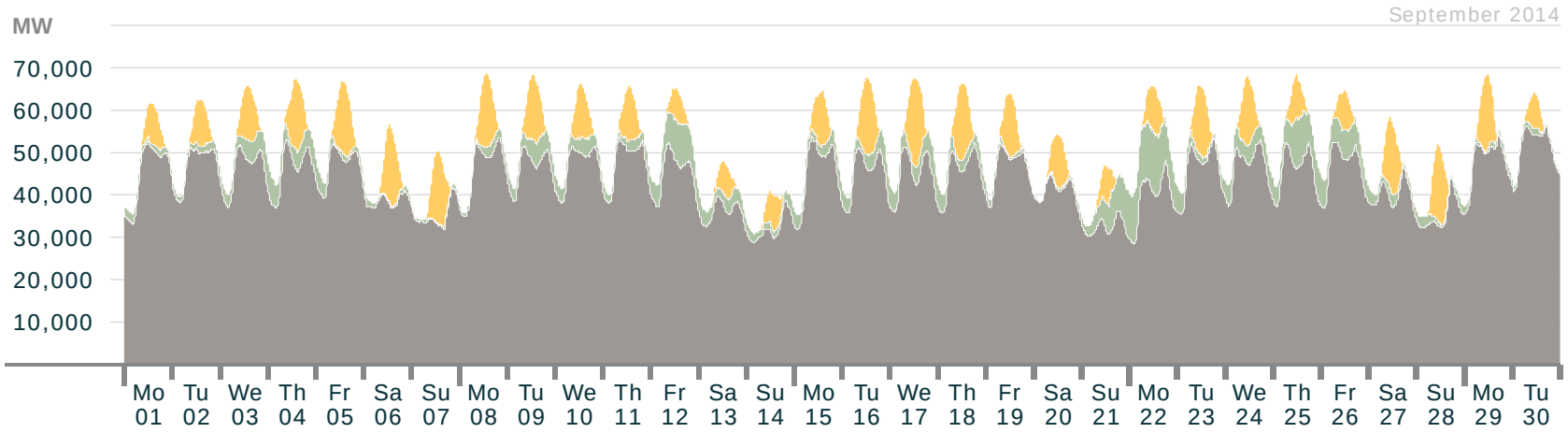
	max. power	date max. power	monthly energy
Solar	22.0 GW	28.08., 12:30 (+2:00)	3.90 TWh
Wind	20.0 GW	18.08., 13:15 (+2:00)	3.33 TWh
Conventional > 100 MW	51.5 GW	26.08., 09:00 (+2:00)	25.5 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Electricity Production in Germany
September 2014

Actual production



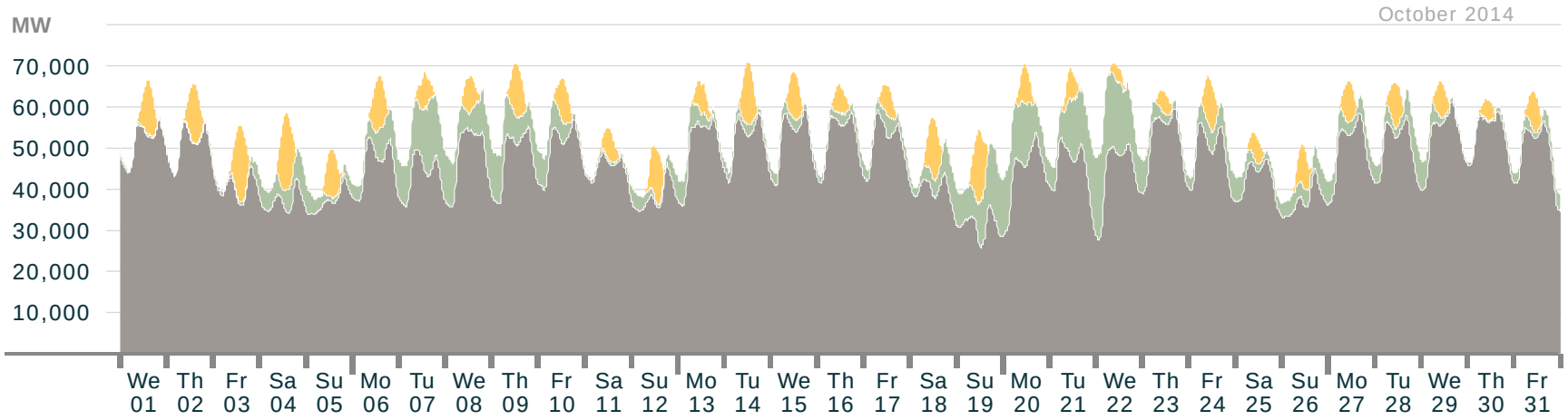
	max. power	date max. power	monthly energy
Solar	20.8 GW	17.09., 13:30 (+2:00)	2.89 TWh
Wind	14.6 GW	22.09., 12:45 (+2:00)	2.45 TWh
Conventional > 100 MW	57.2 GW	30.09., 19:00 (+2:00)	31.4 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Electricity Production in Germany
October 2014

Actual production



	max. power	date max. power	monthly energy
Solar	18.7 GW	03.10., 13:30 (+2:00)	1.96 TWh
Wind	21.5 GW	22.10., 03:30 (+2:00)	3.8 TWh
Conventional > 100 MW	61.3 GW	29.10., 17:00 (+1:00)	34.5 TWh

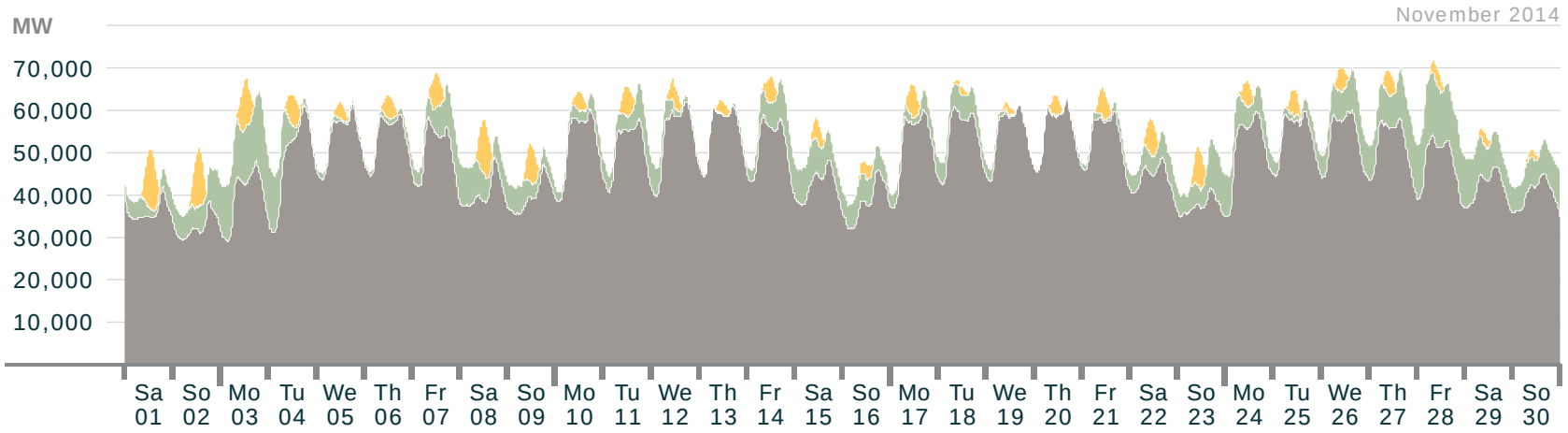
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Electricity Production in Germany

November 2014

Actual production



	max. power	date max. power	monthly energy
Solar	14.0 GW	01.11., 12:00 (+1:00)	0.97 TWh
Wind	19.8 GW	03.11., 19:00 (+1:00)	3.99 TWh
Conventional > 100 MW	62.3 GW	20.11., 17:00 (+1:00)	34.3 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

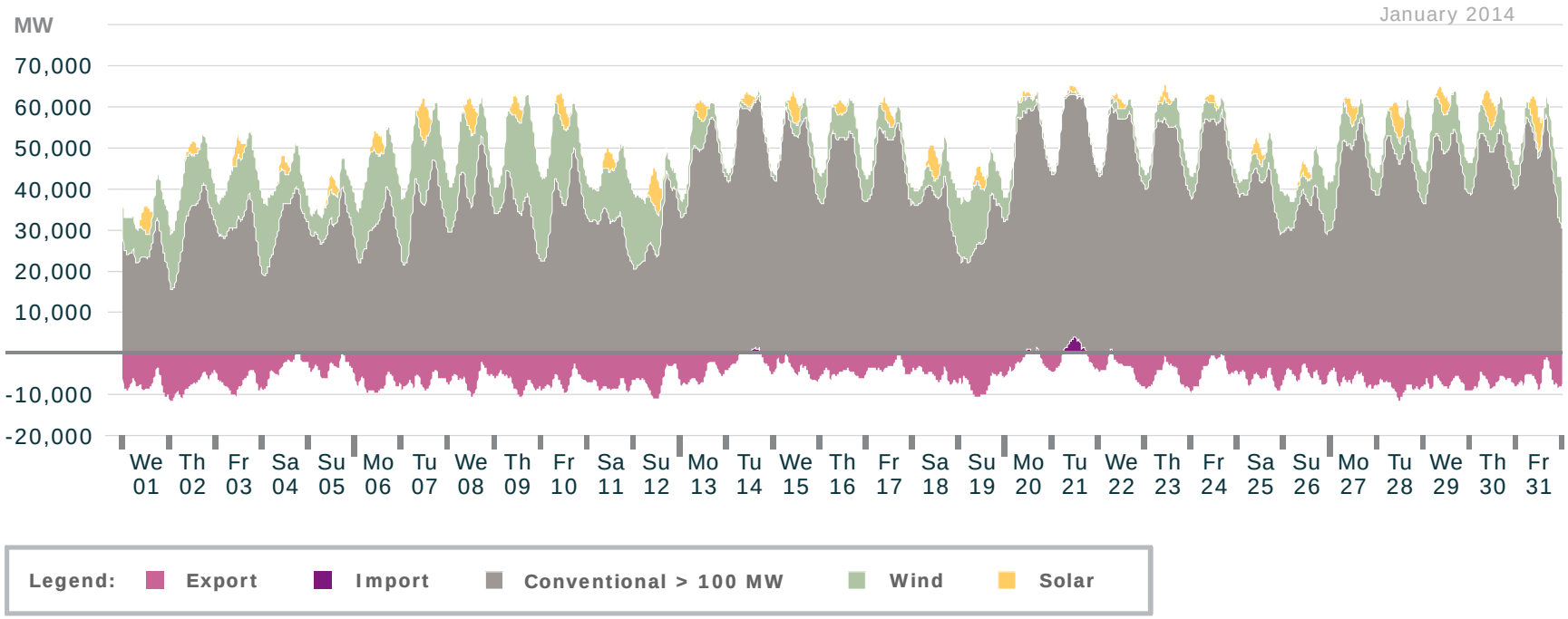
Fraunhofer ISE

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
  - Monthly power curves for conventional, wind and solar
  - Monthly power curves with export and import
  - Detailed monthly power curves
  - Diurnal power courses
- Weekly power curves

Electricity Production with Export and Import
January 2014

Actual production

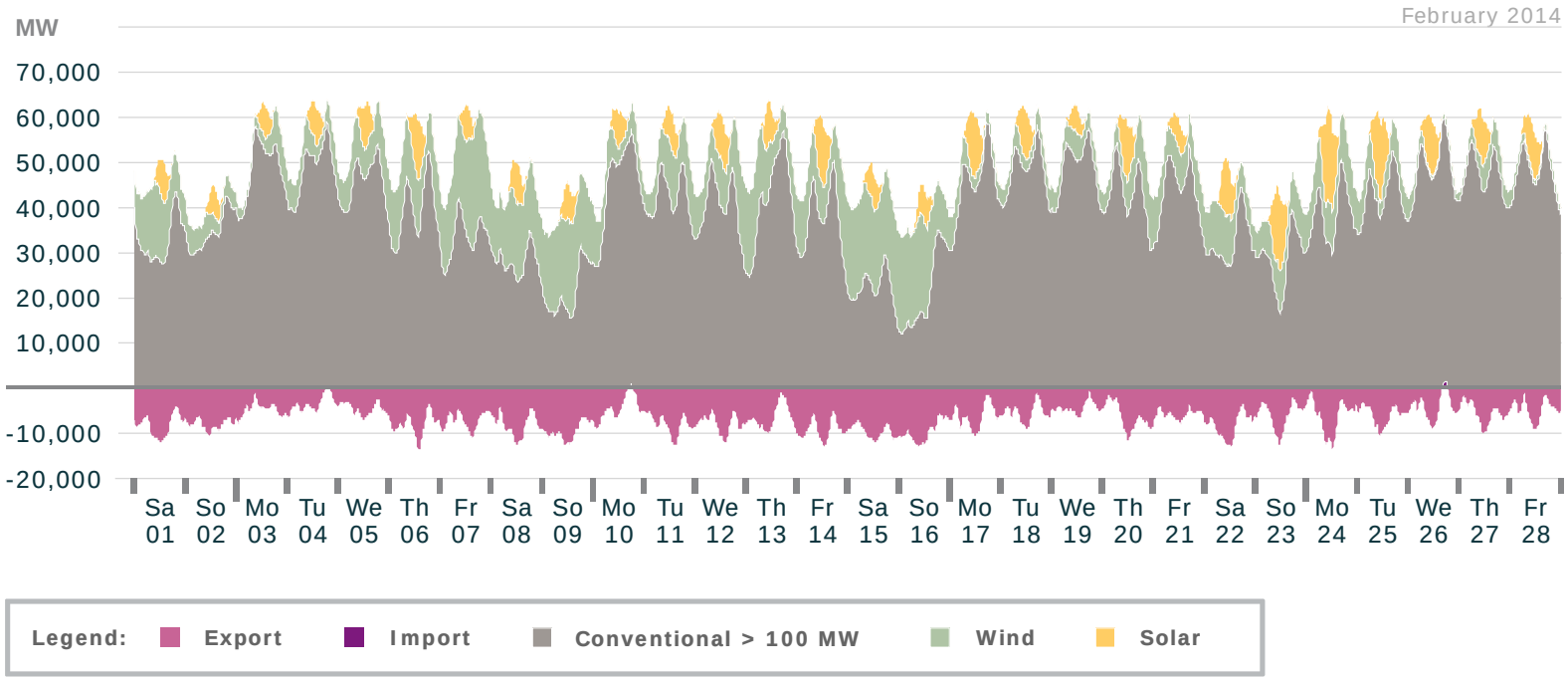


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

Electricity Production with Export and Import
February 2014

Actual production

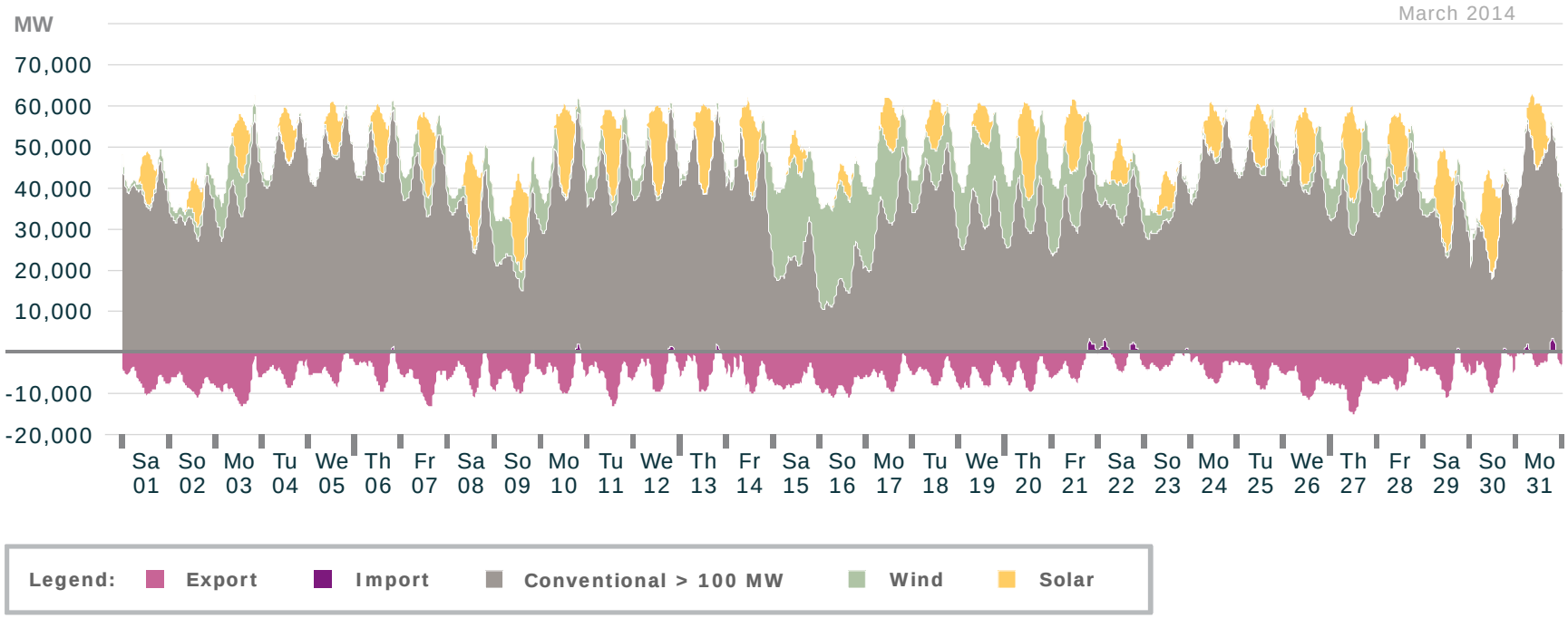


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

Electricity Production with Export and Import
March 2014

Actual production

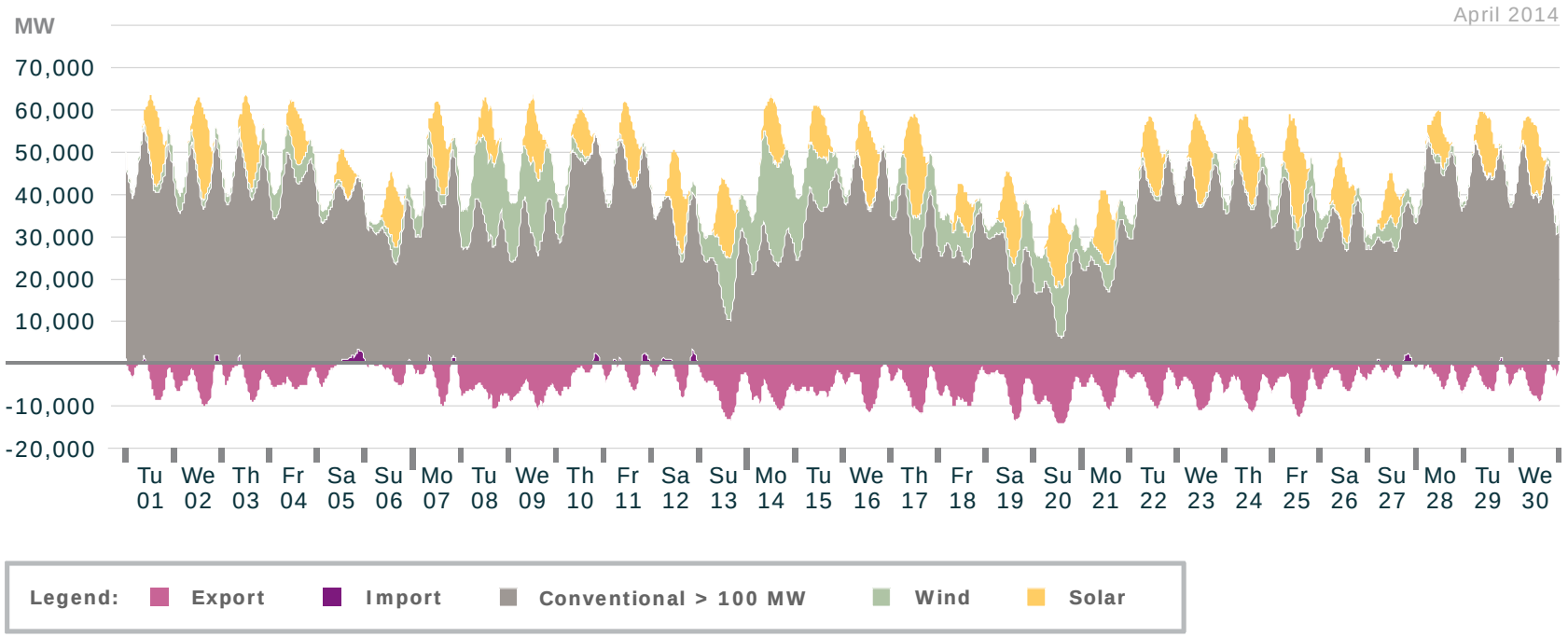


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

Electricity Production with Export and Import
April 2014

Actual production



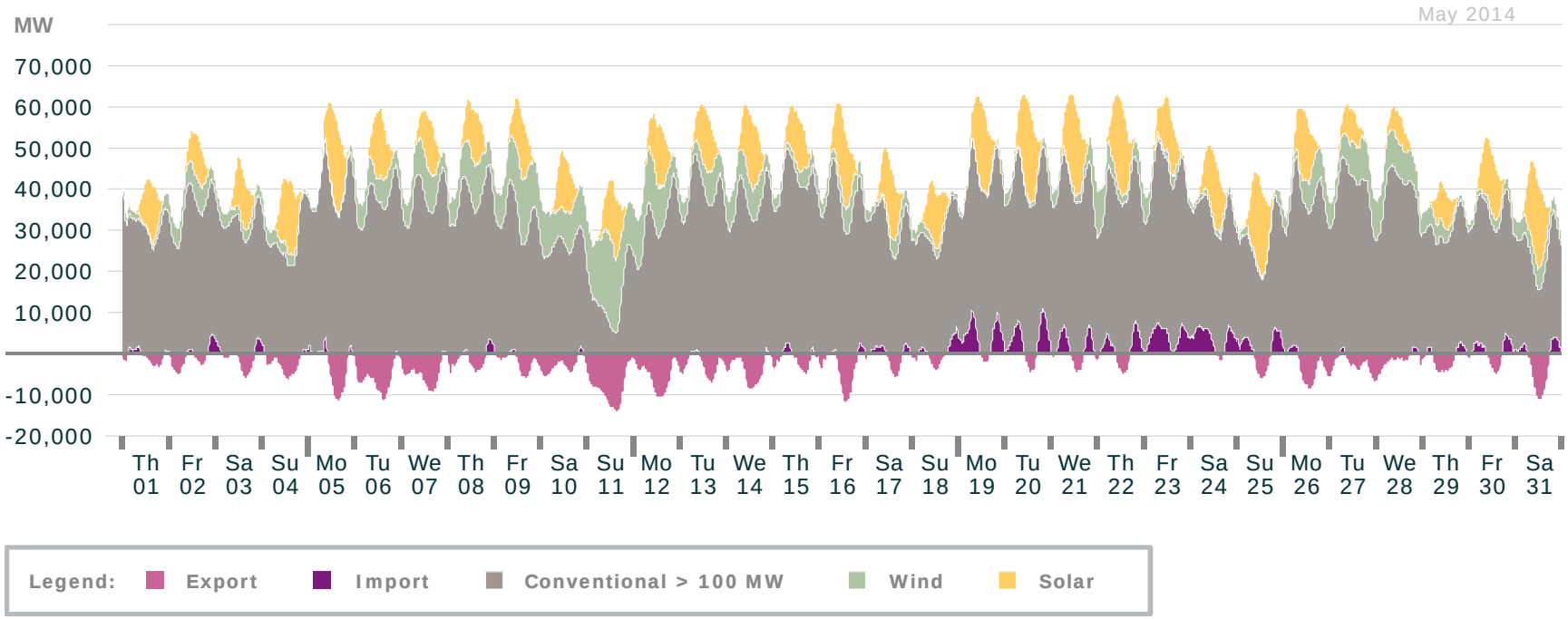
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

Electricity Production with Export and Import

May 2014

Actual production

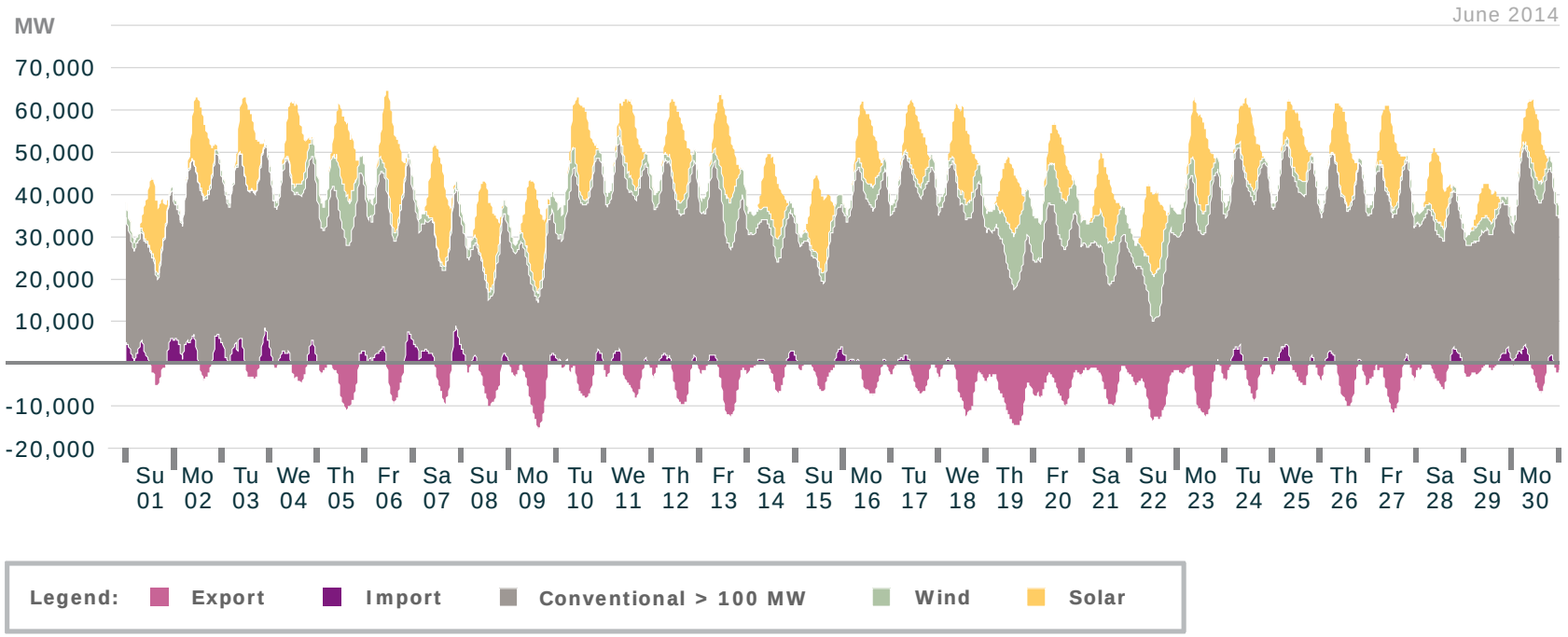


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

Electricity Production with Export and Import
June 2014

Actual production

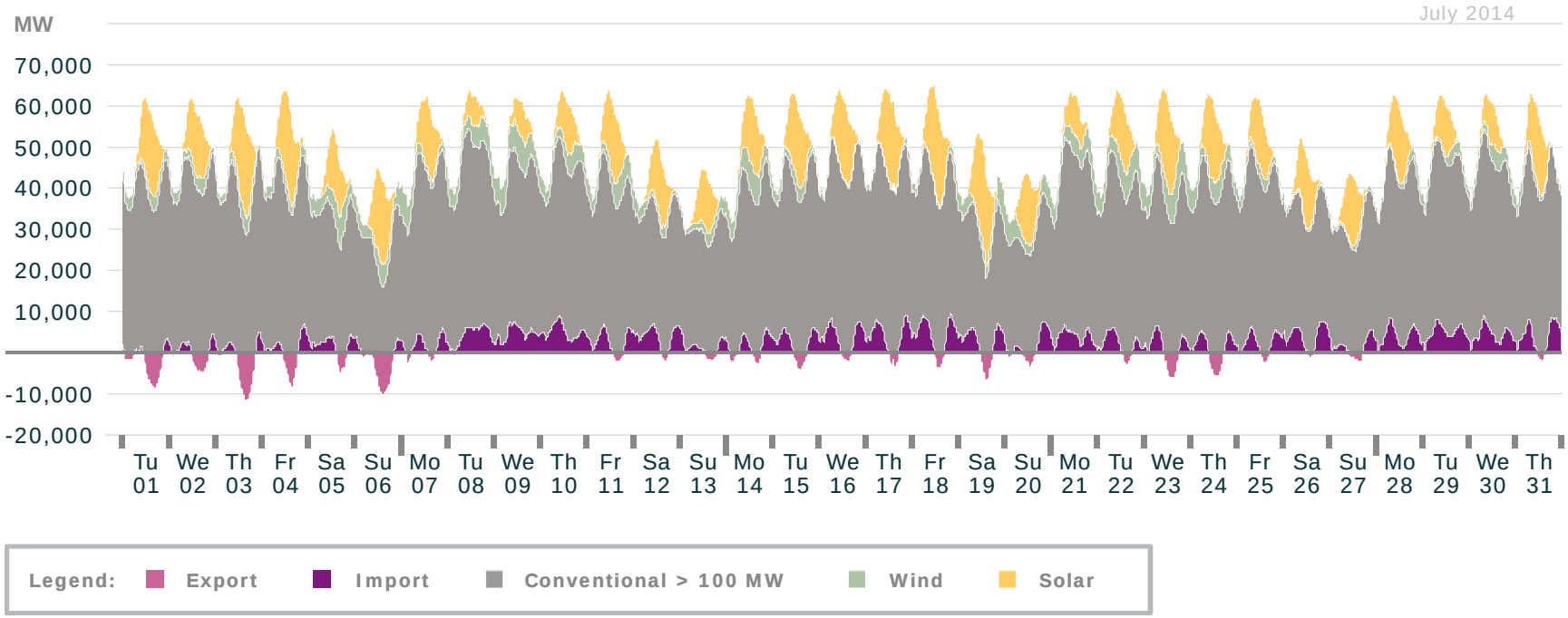


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

Electricity Production with Export and Import
July 2014

Actual production



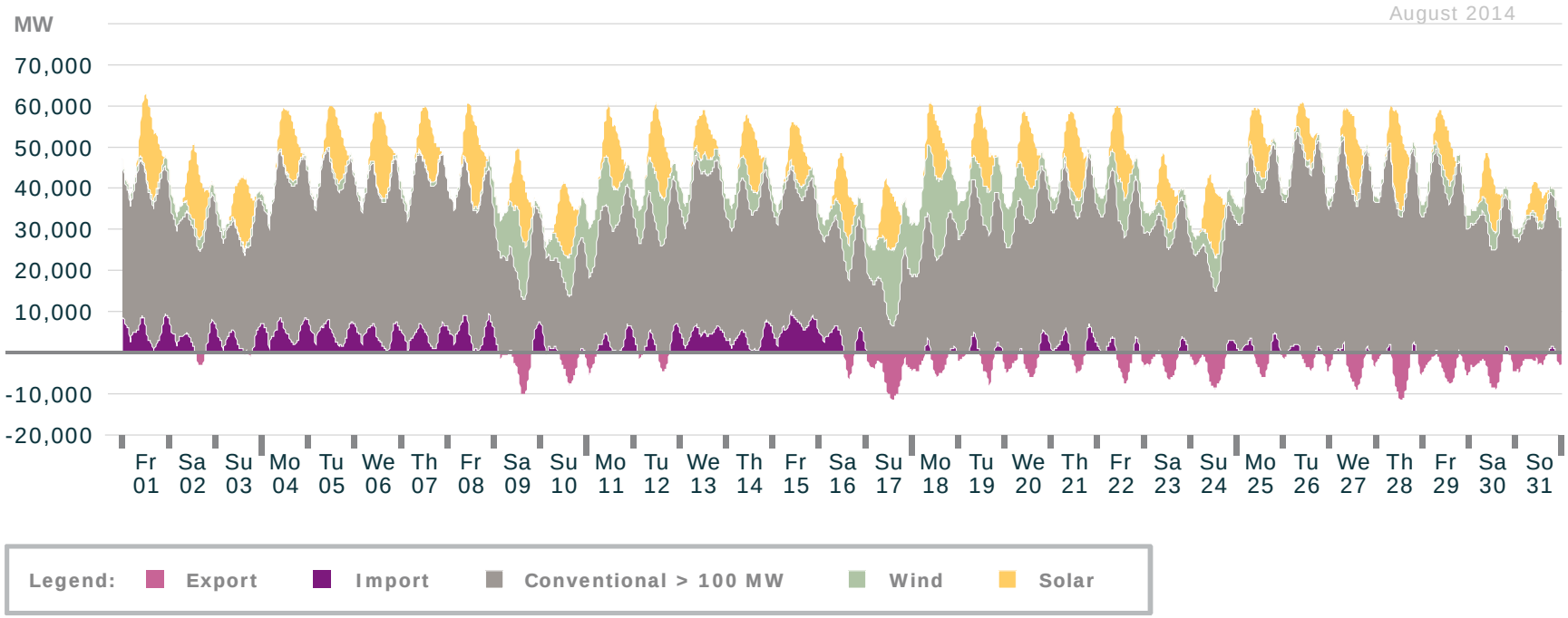
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

Electricity Production with Export and Import

August 2014

Actual production

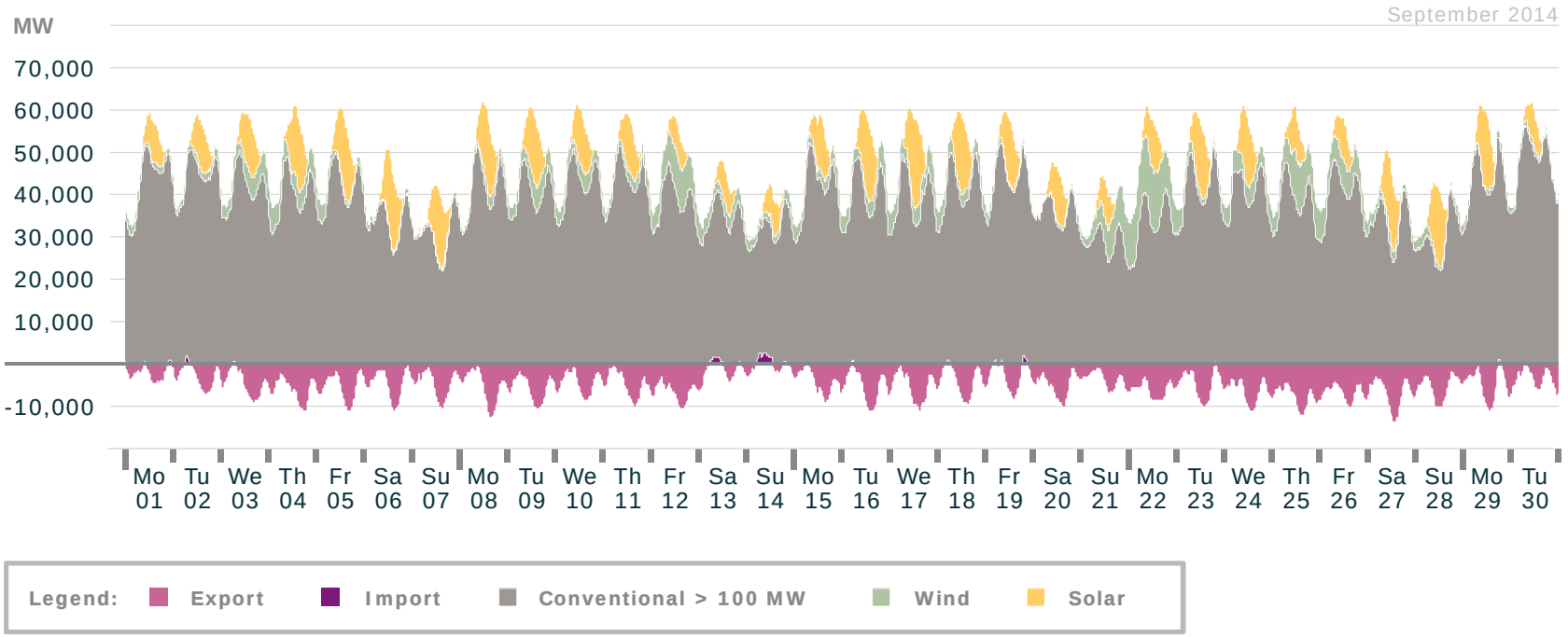


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

Electricity Production with Export and Import
September 2014

Actual production

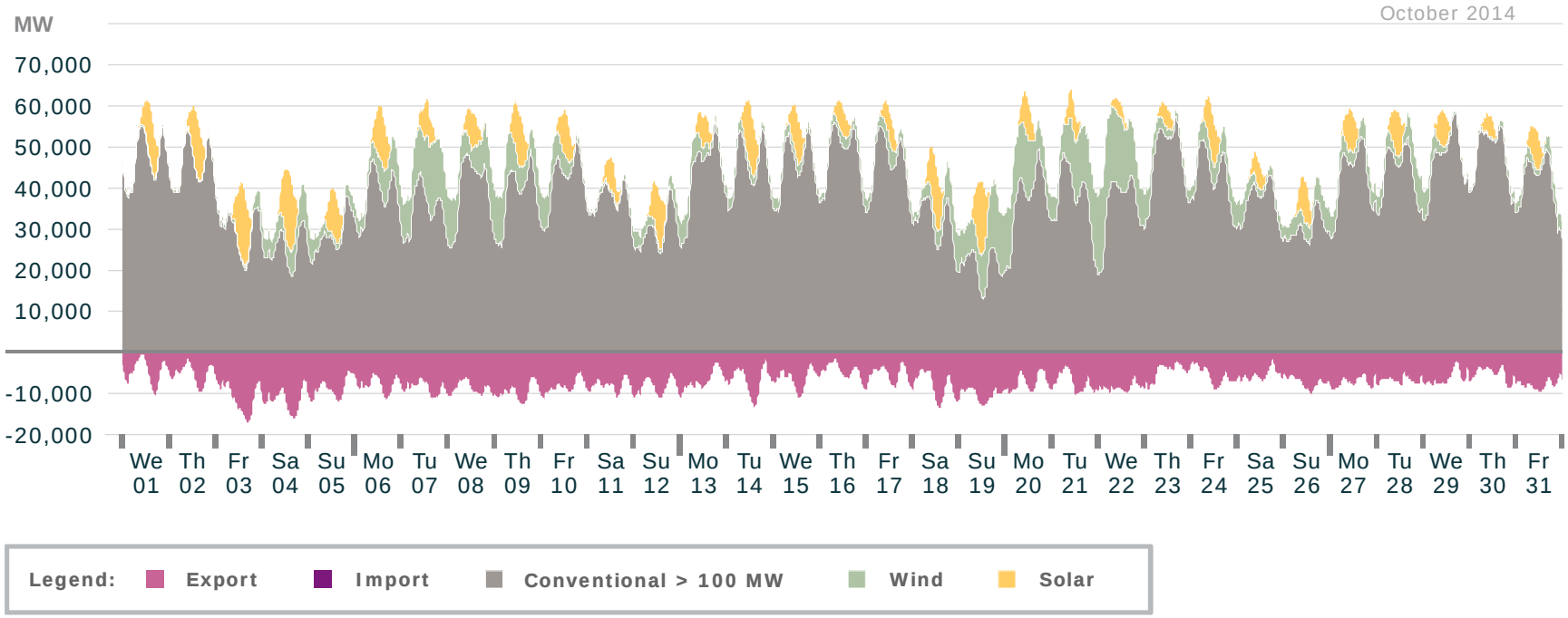


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

Electricity Production with Export and Import
October 2014

Actual production

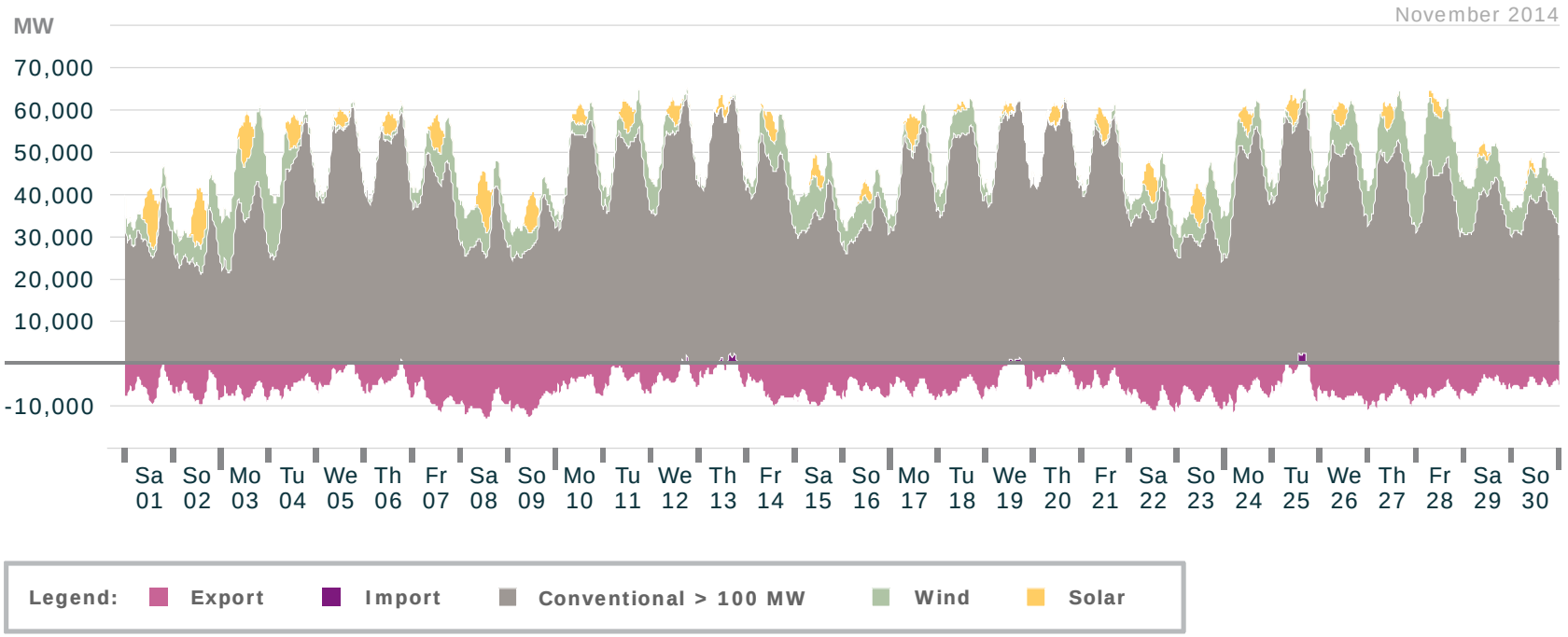


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

Electricity Production with Export and Import
November 2014

Actual production



Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform; Entso-e

Fraunhofer ISE

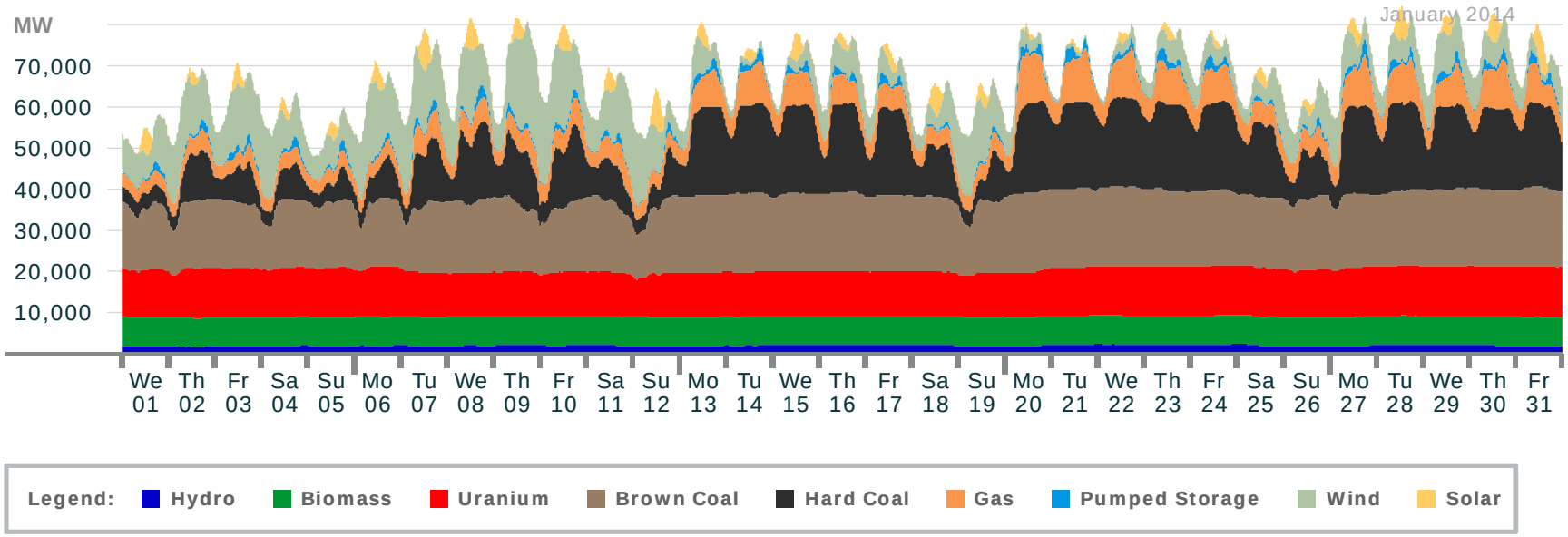
AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
  - Monthly power curves for conventional, wind and solar
  - Monthly power curves with export and import
  - Detailed monthly power curves
  - Diurnal power courses
- Weekly power curves

Detailed Electricity Production

January 2014

Actual production



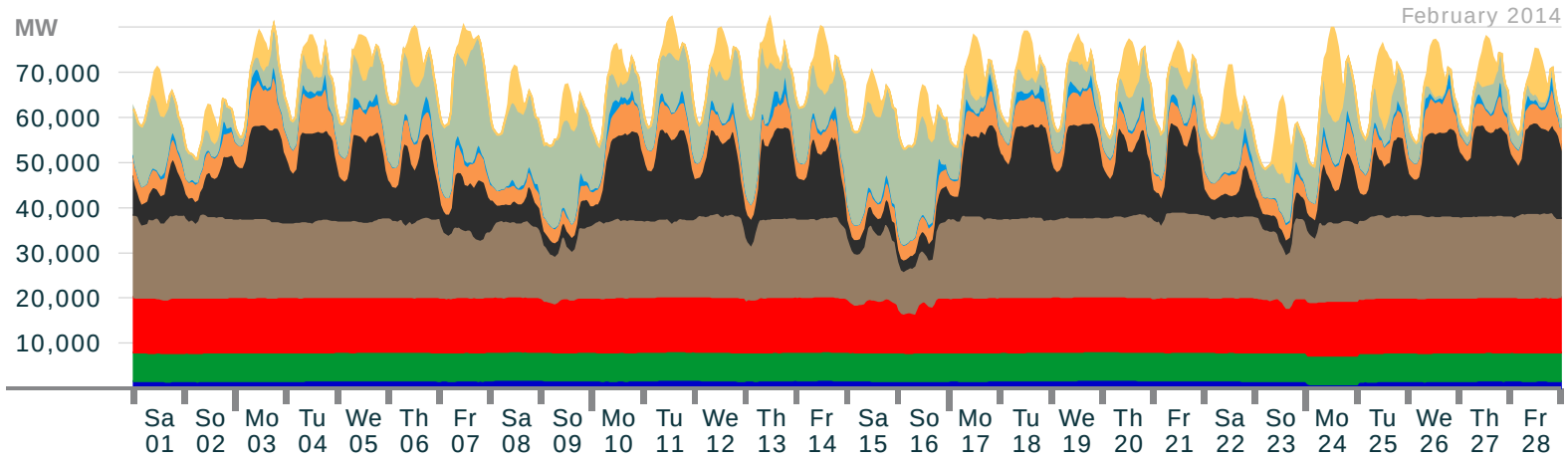
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.6		8.9	10.5	3.3	3.1	0	0.5	0
max. power (GW)	2.4		12.1	19.4	22.0	12.9	3.7	25.0	10.1
weekly energy (TWh)	1.5	5.2	8.5	12.9	10.1	4.2	0.6	6.2	0.7

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

Detailed Electricity Production
February 2014

Actual production



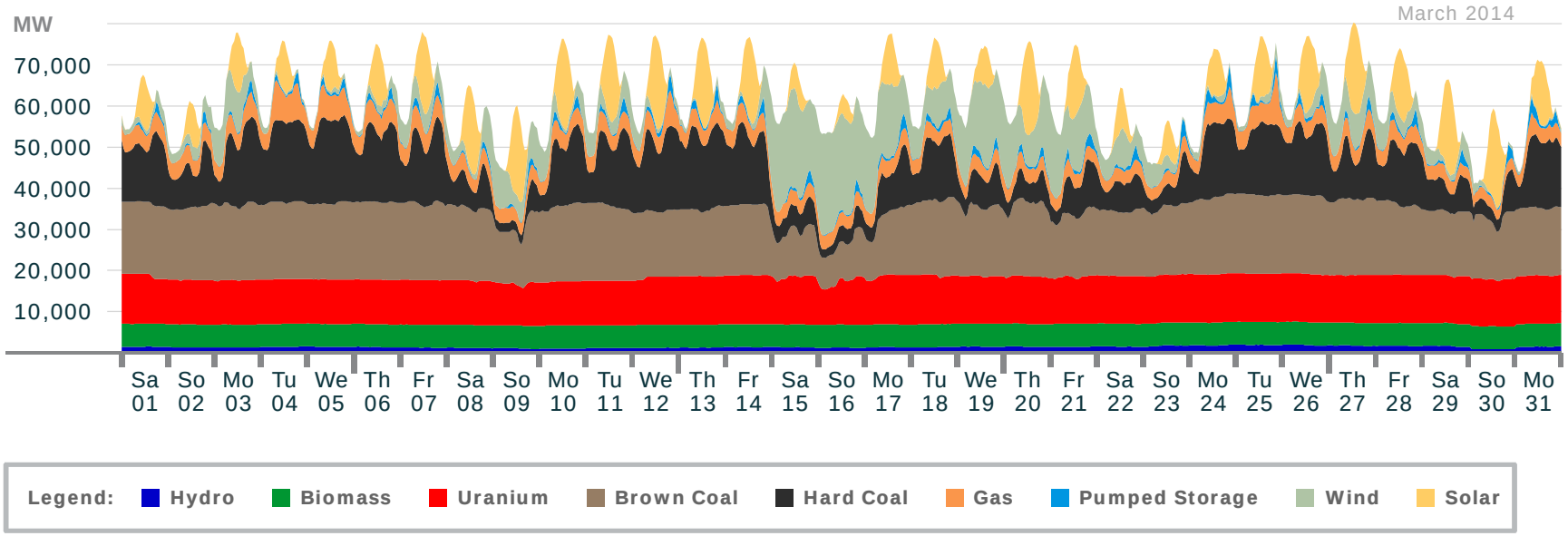
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.9		8.6	9.4	2.5	2.8	0	0.5	0
max. power (GW)	1.9		12.1	18.9	21.0	11.4	4.3	25.6	20.4
weekly energy (TWh)	1.1	4.2	8.1	11.3	8.3	3.2	0.6	6.1	1.6

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

Detailed Electricity Production
March 2014

Actual production



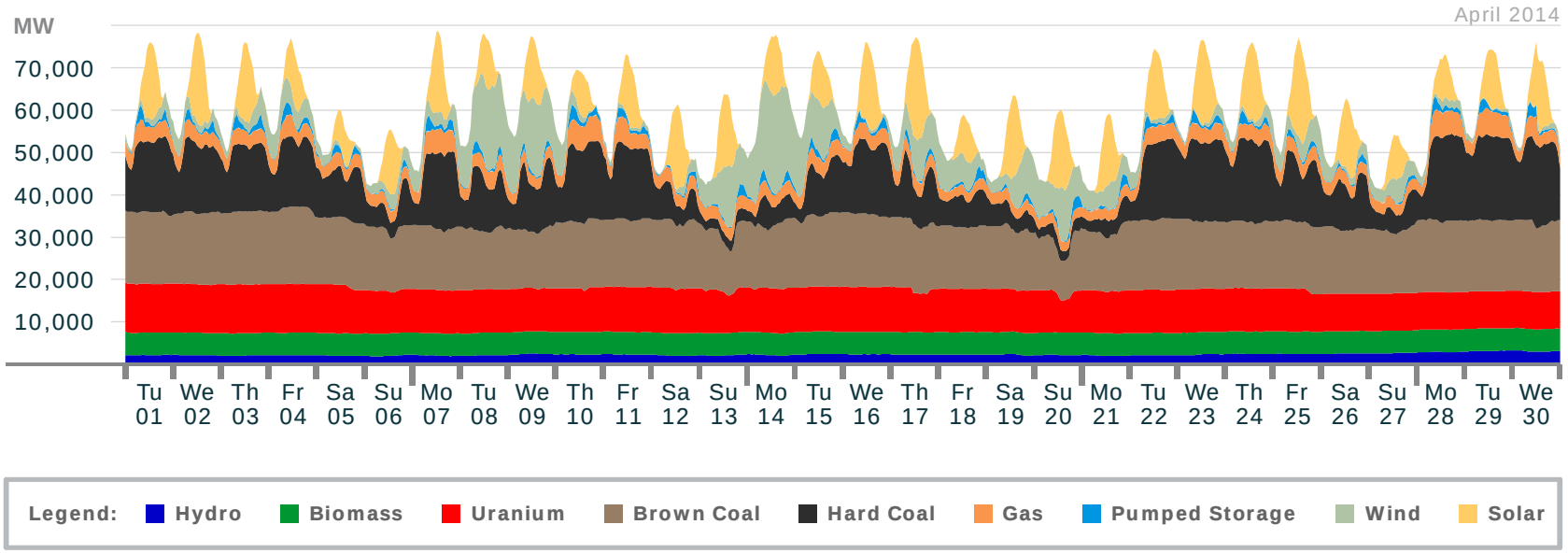
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.8		8.5	7.7	2.1	2.3	0	0	0
max. power (GW)	2.0		12.1	19.4	20.9	12.5	5.0	24.8	23.0
weekly energy (TWh)	1.0	4.1	8.4	12.4	8.5	3.0	0.6	4.6	3.3

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

Detailed Electricity Production
April 2014

Actual production



	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.5		7.7	9.2	2.3	2	0	0.1	0
max. power (GW)	2.6		11.6	18.2	20.8	6.7	3.9	23.9	24.2
weekly energy (TWh)	1.3	3.8	7.3	11.2	8.5	2.4	0.6	3.6	3.7

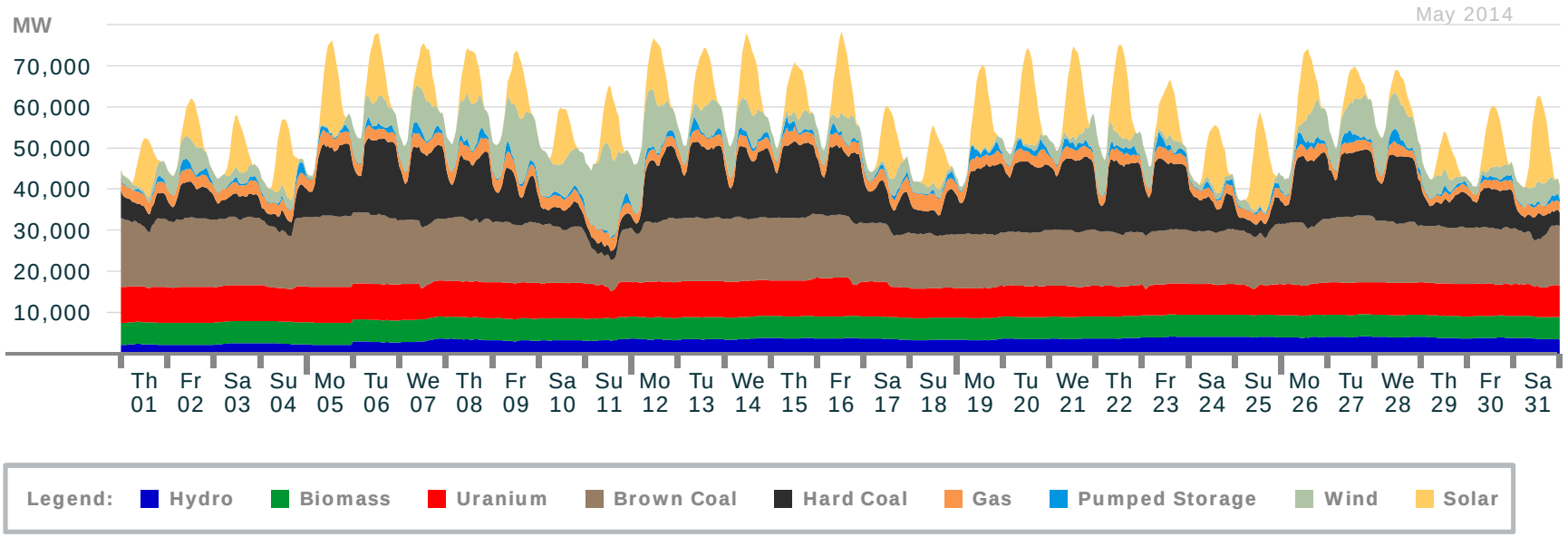
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

Detailed Electricity Production

May 2014

Actual production



	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	2.0		6.3	7.3	2.3	1.6	0	0.3	0
max. power (GW)	4.2		9.5	17.3	18.6	4.5	3.5	21.7	23.5
weekly energy (TWh)	2.5	4.0	6.0	10.7	8.1	2.0	0.6	3.7	4.1

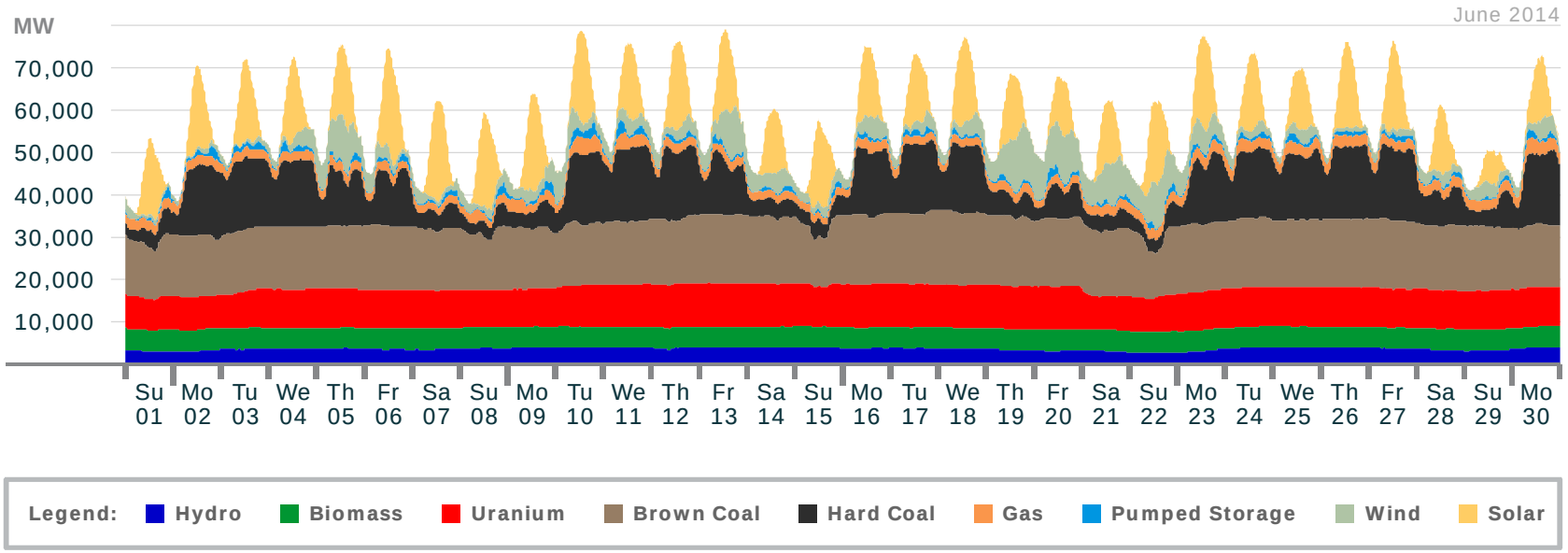
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

Detailed Electricity Production

June 2014

Actual production



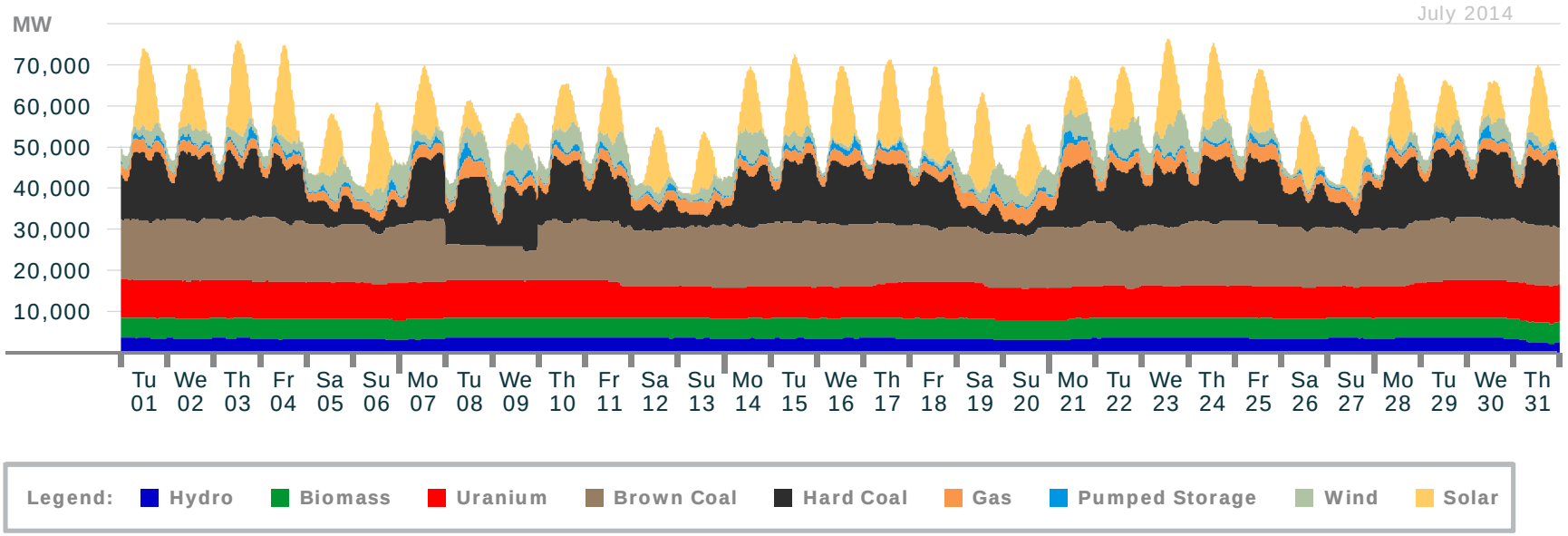
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	2.7		7.2	10.3	2.5	1.5	0	0.1	0
max. power (GW)	4.2		10.2	17.5	17.9	4.3	3.6	13.7	24.2
weekly energy (TWh)	2.7	3.6	6.7	11	7.4	1.6	0.5	2.5	4.8

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

Detailed Electricity Production
July 2014

Actual production



	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	2.0		6.9	7.1	2.4	1.9	0	0	0
max. power (GW)	3.7		9.2	16.1	17.2	6.1	3.9	9.5	23.6
weekly energy (TWh)	2.5	3.6	6.2	10.5	8.4	2.0	0.5	2.3	4.4

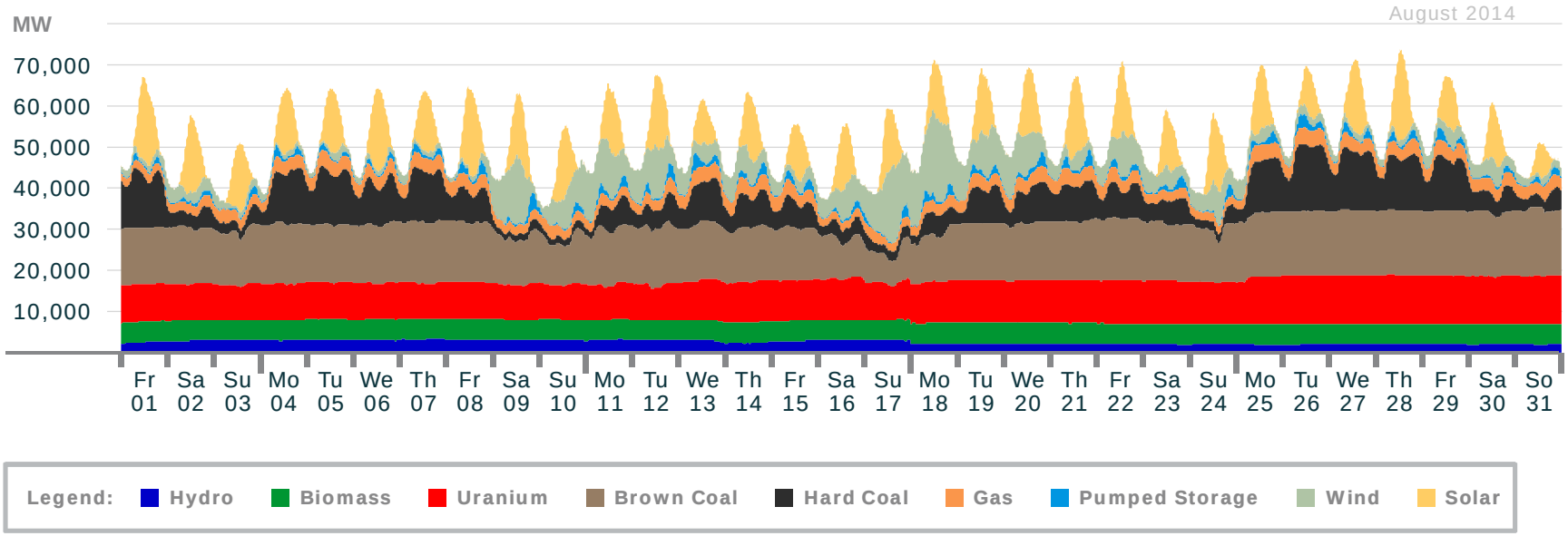
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

Detailed Electricity Production

August 2014

Actual production



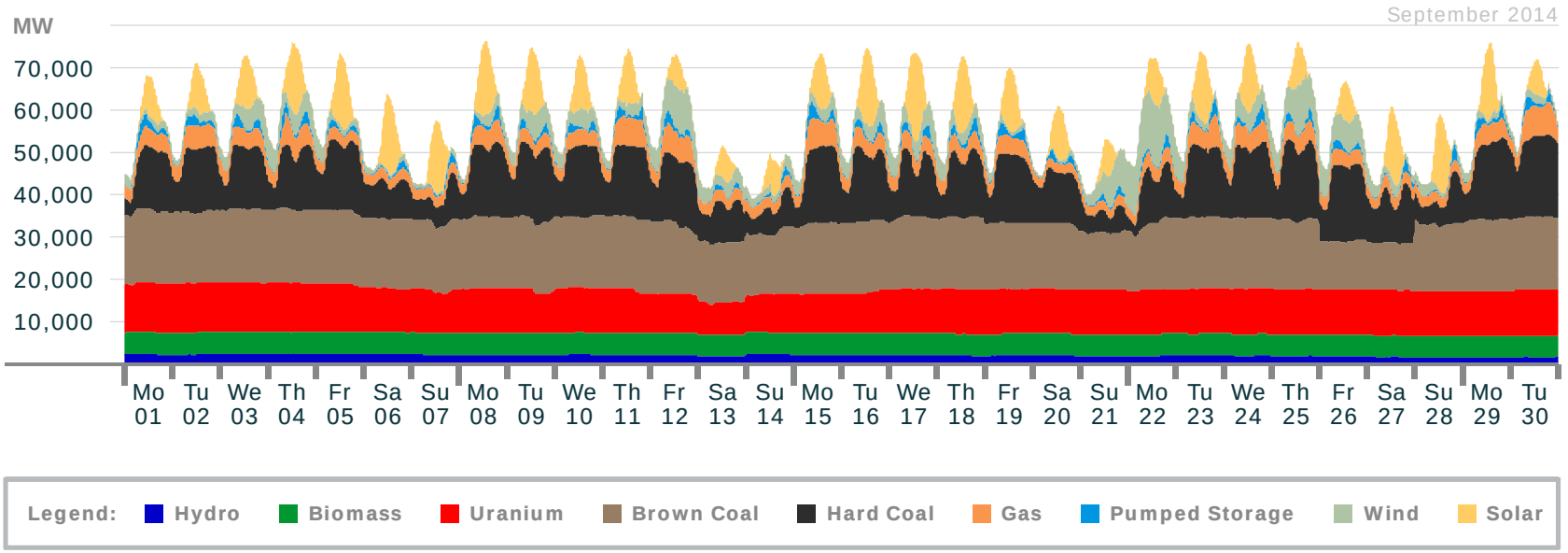
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.9		7.5	6.1	1.5	1.5	0	0.1	0
max. power (GW)	3.2		11.9	16.9	16.3	4.3	4.4	20.0	22.0
weekly energy (TWh)	1.9	3.7	7.4	10.2	5.3	2.2	0.7	3.3	3.9

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

Detailed Electricity Production
September 2014

Actual production



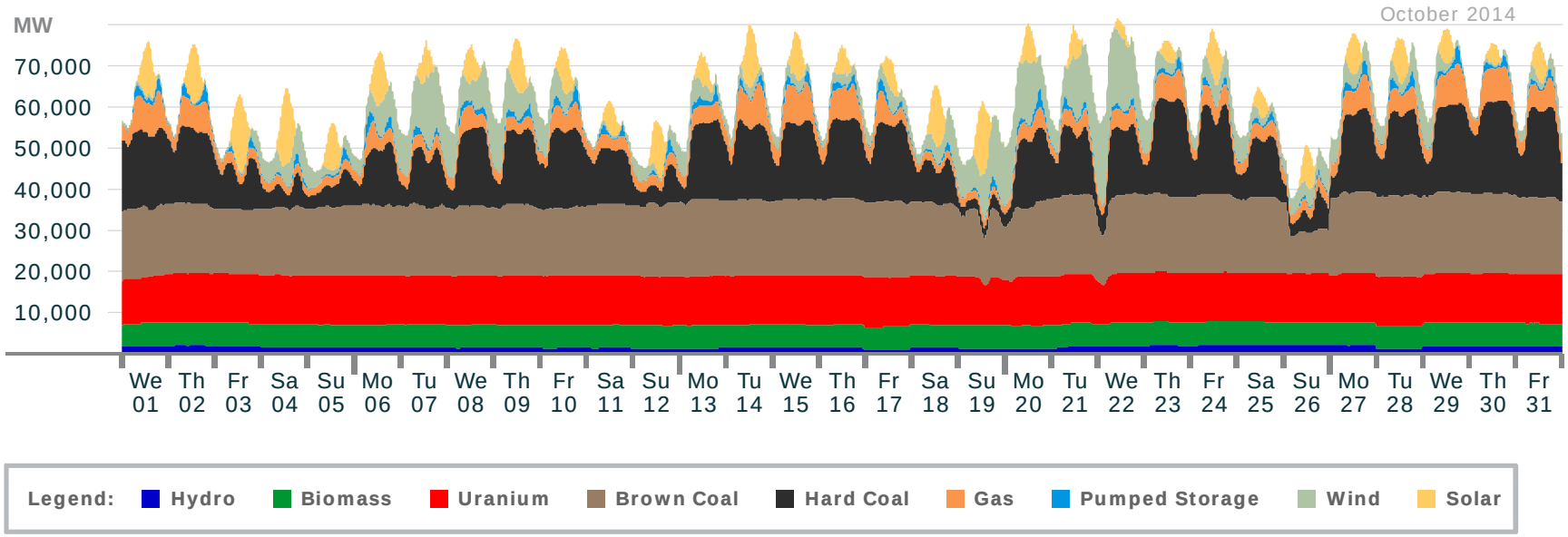
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.5		6.9	11.0	2.7	2.0	0	0.1	0
max. power (GW)	2.6		11.8	17.6	19.4	7.9	4.0	14.6	20.8
weekly energy (TWh)	1.5	3.7	7.5	11.5	8.8	2.6	0.7	2.5	2.9

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

Detailed Electricity Production
October 2014

Actual production



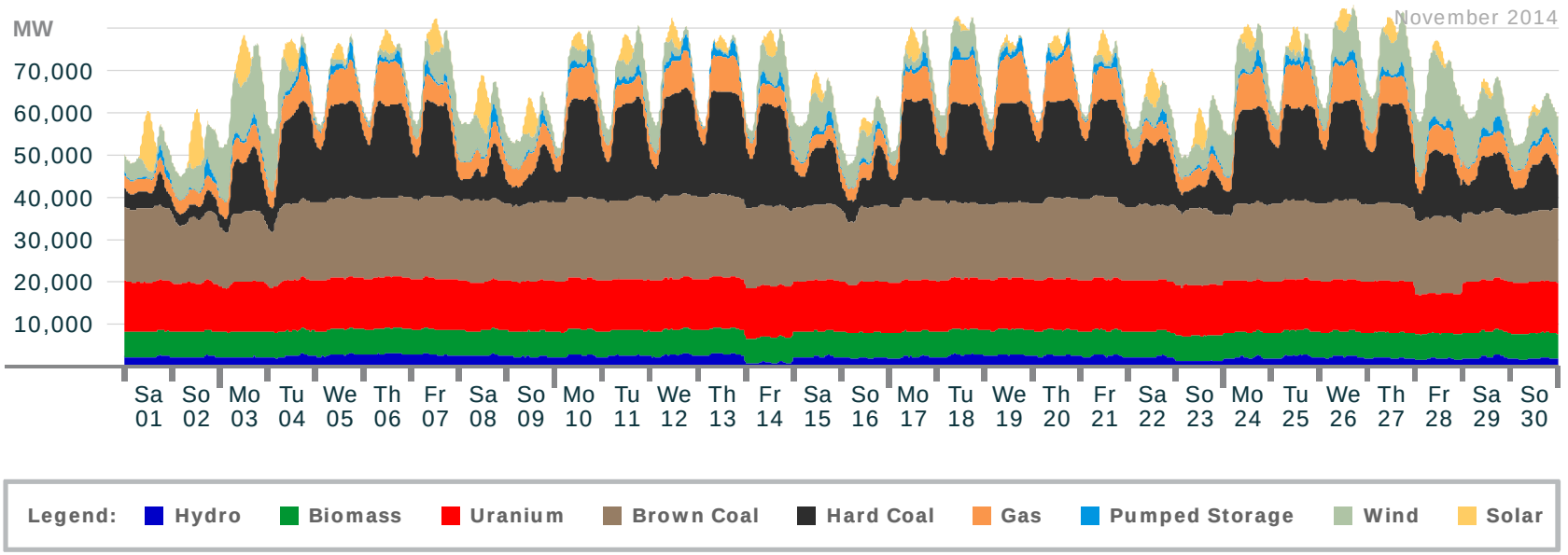
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.9		9.1	8.8	2.3	1.3	0	0.1	0
max. power (GW)	2.5		12	19.8	23.9	10.1	4.6	21.5	18.7
weekly energy (TWh)	1.3	4.2	8.9	13.0	9.9	3.0	0.6	3.8	2.0

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

Detailed Electricity Production
November 2014

Actual production



	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.5		9.0	13.0	2.8	2.9	0	0.1	0
max. power (GW)	3.2		12.5	19.8	24.9	12.7	5.0	19.8	14.0
weekly energy (TWh)	1.6	4.3	8.6	13.0	10.9	3.9	0.7	4.0	1.0

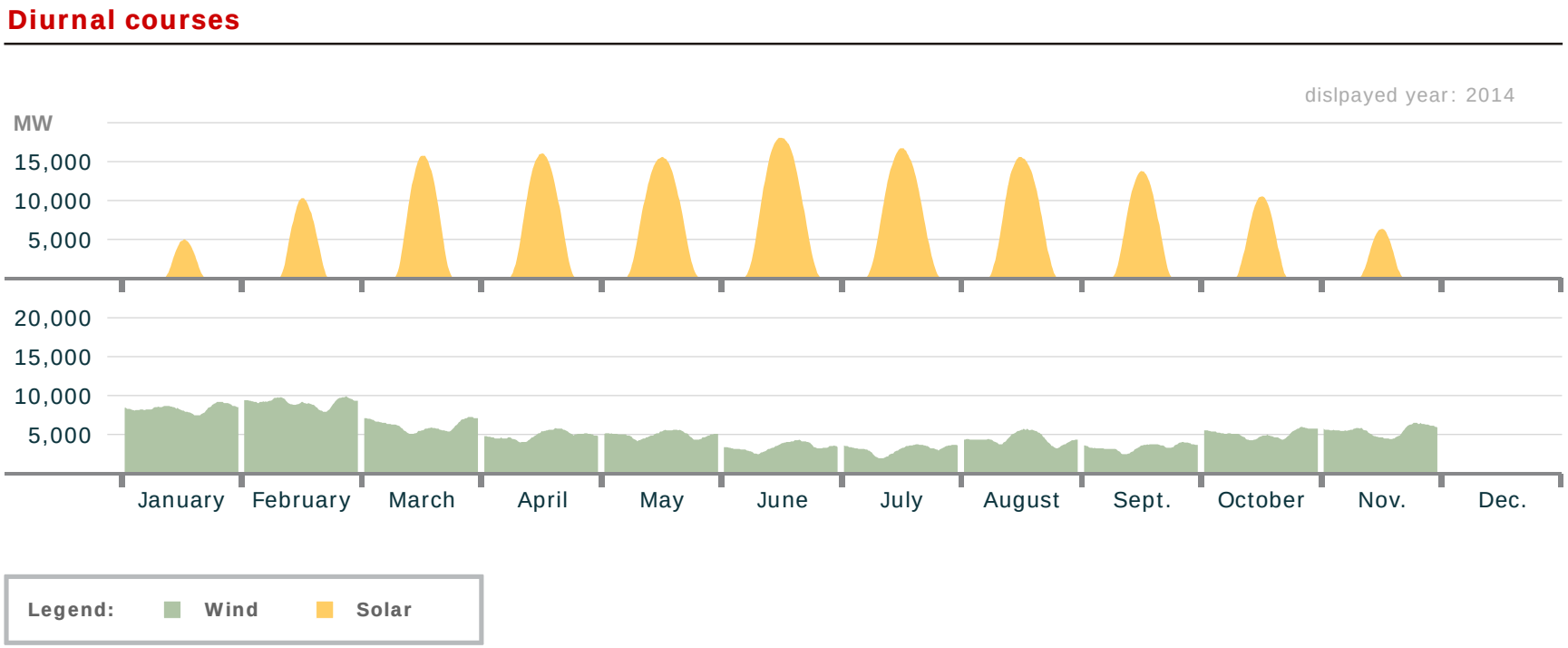
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform and German Federal Statistical Office

Fraunhofer ISE

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
  - Monthly power curves for conventional, wind and solar
  - Monthly power curves with export and import
  - Detailed monthly power curves
  - Diurnal power courses
- Weekly power curves

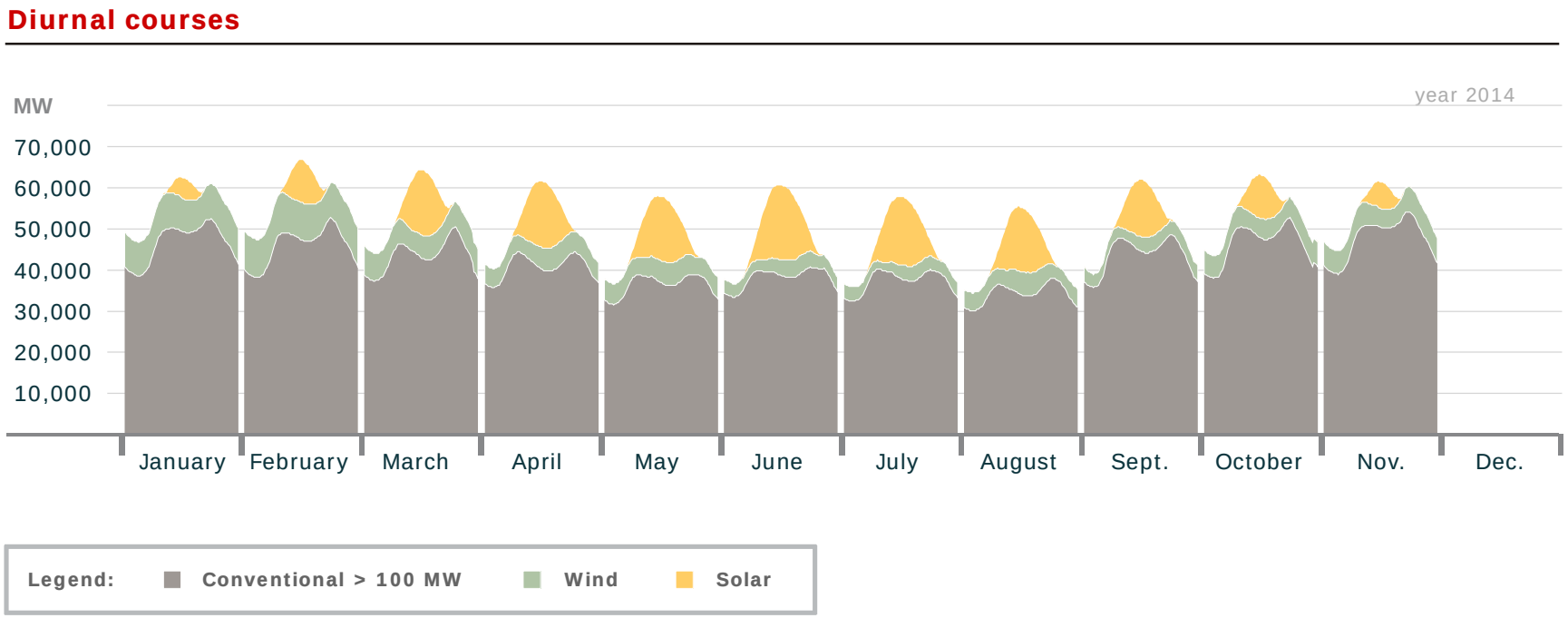
Diurnal courses



Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

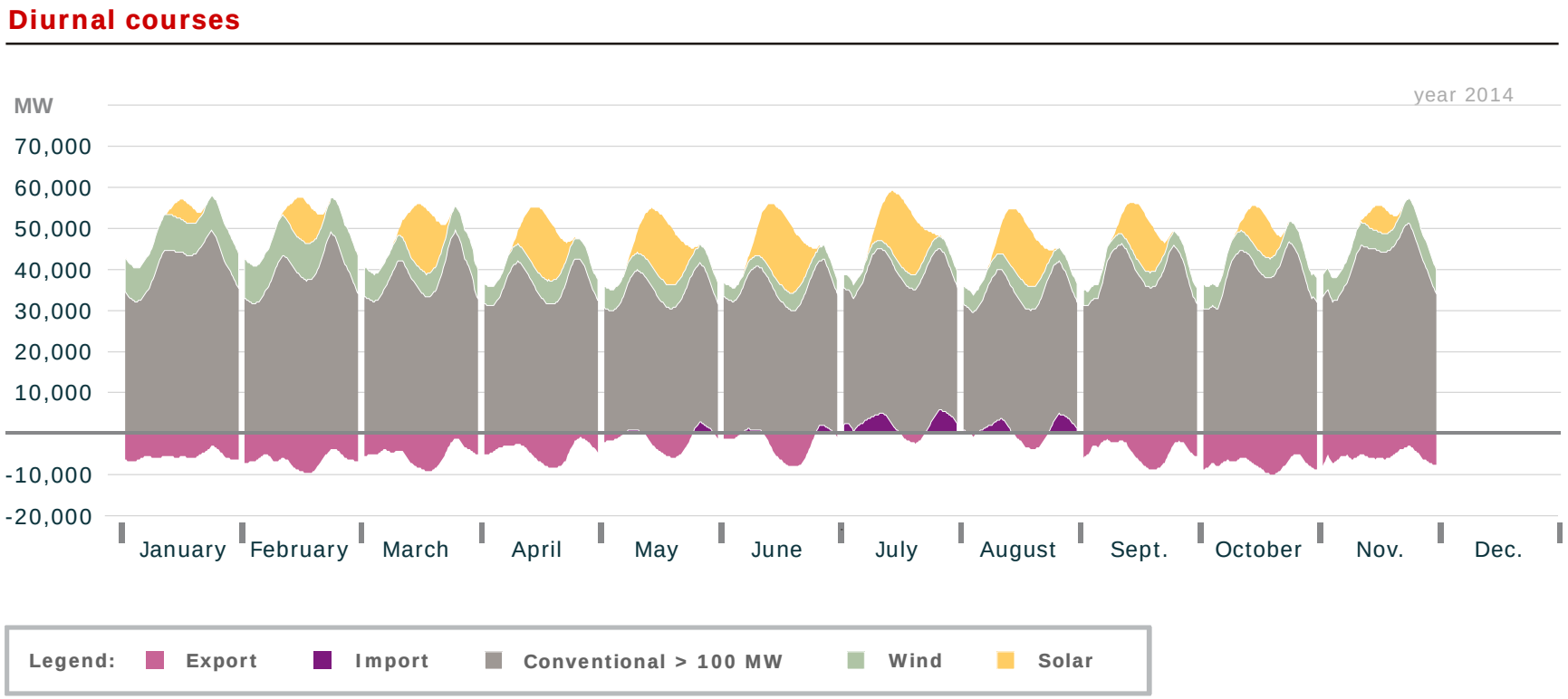
Diurnal courses



Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

Diurnal courses with Export and Import

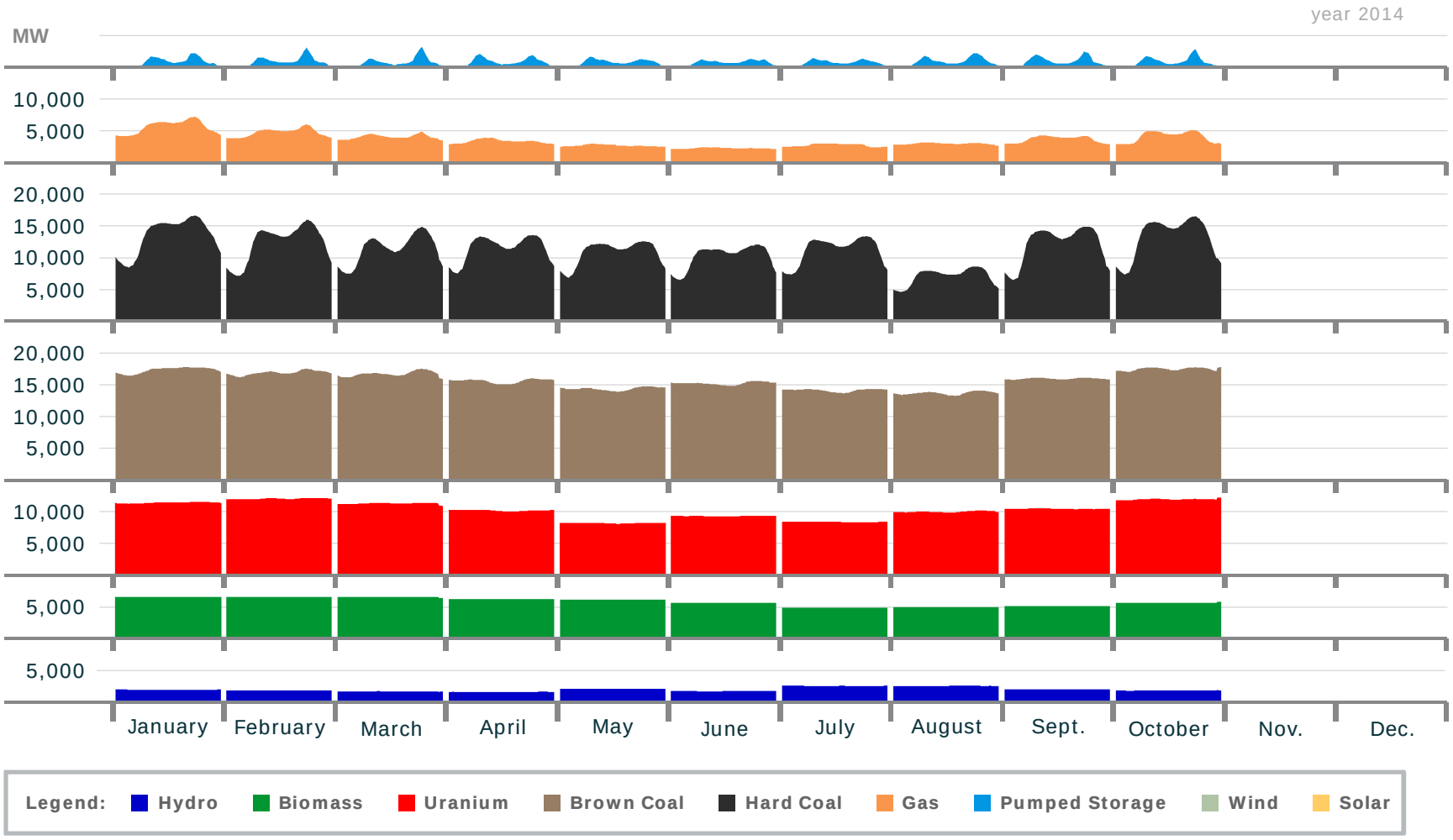


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

Fraunhofer ISE

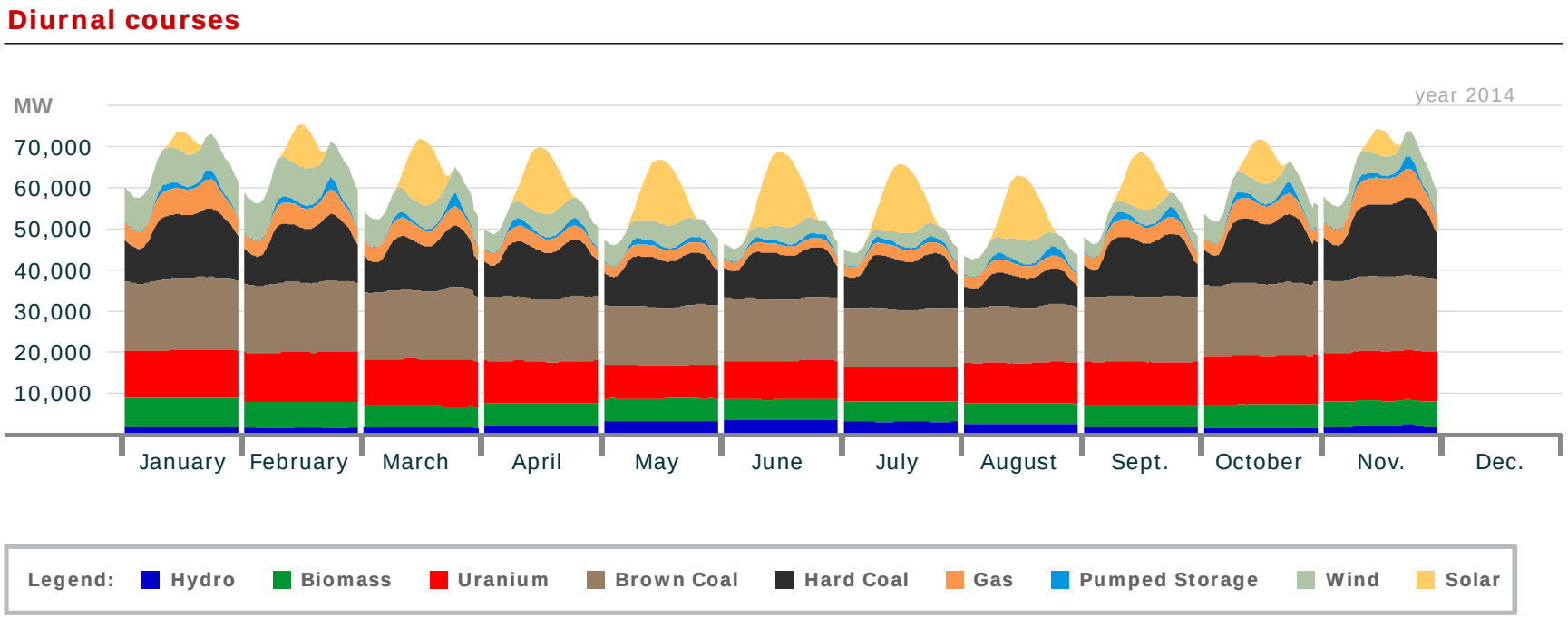
Detailed diurnal courses

Diurnal courses



Fraunhofer ISE

Detailed diurnal courses



Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform /

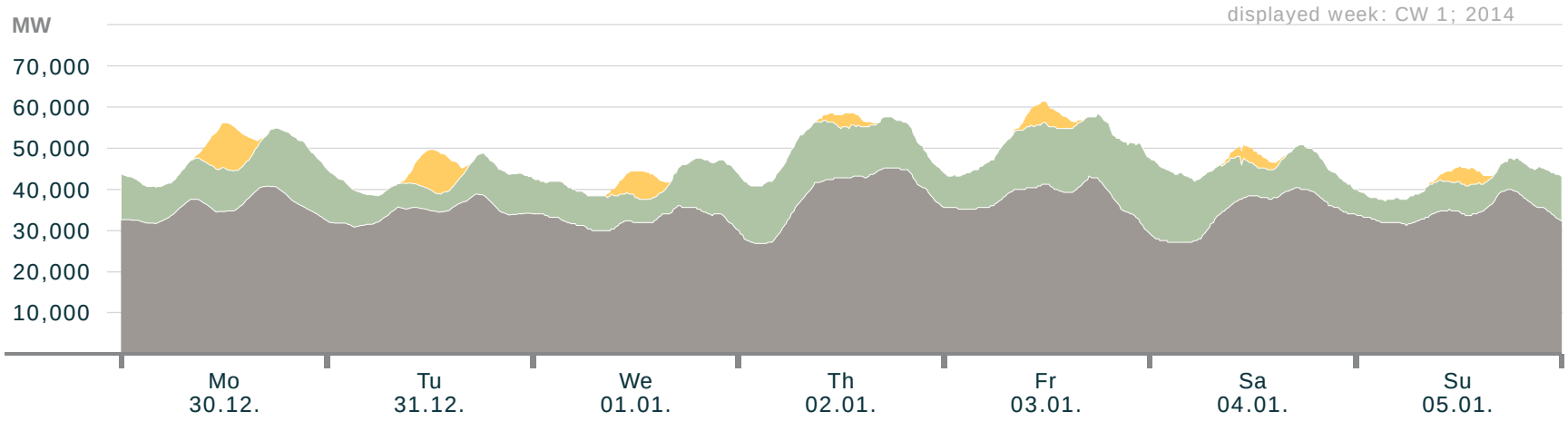
Fraunhofer ISE

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
- Weekly power curves
  - Weekly power curves for conventional, wind and solar
  - Weekly power curves with export and import
  - Detailed weekly power curves
- Exemplary daily power curves

Electricity Production in Germany: Calendar Week 1

Actual production



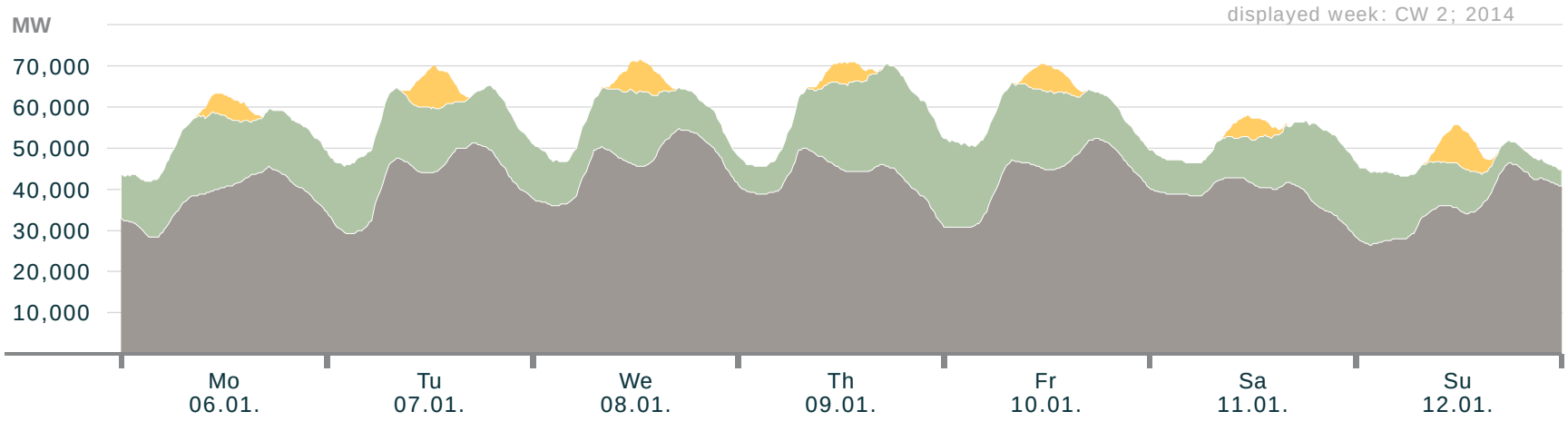
	max. power	date max. power	weekly energy
Solar	10.6 GW	30.12., 12:30 (+1:00)	0.2 TWh
Wind	19.0 GW	03.01., 23:00 (+1:00)	1.7 TWh
Conventional > 100 MW	45.2 GW	02.01., 17:00 (+1:00)	6.0 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 2

Actual production



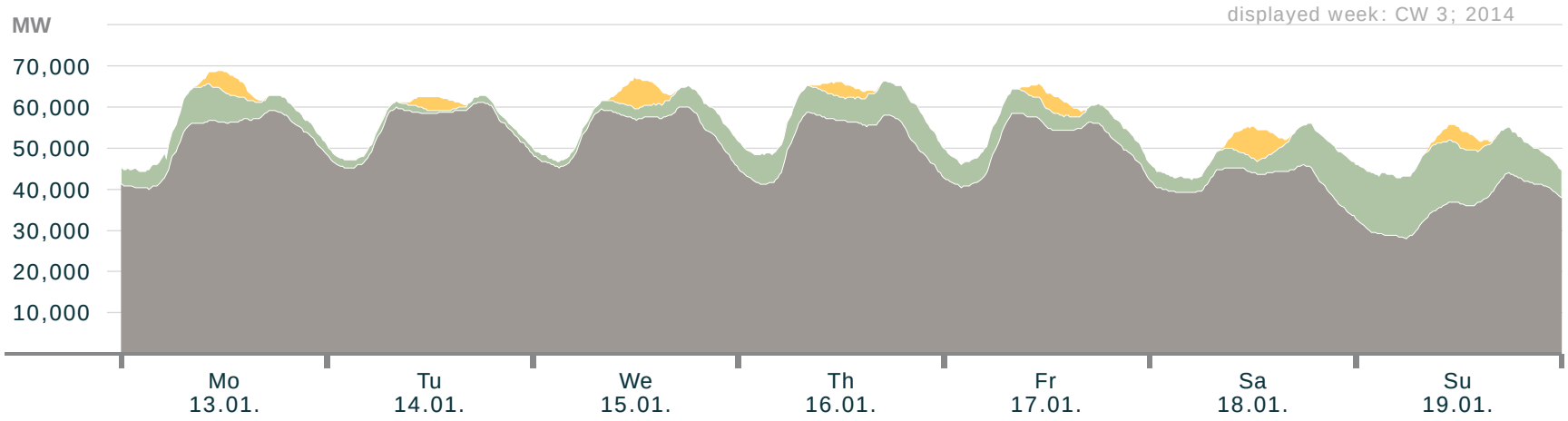
	max. power	date max. power	weekly energy
Solar	10.1 GW	07.01., 12:30 (+1:00)	0.23 TWh
Wind	25.0 GW	09.01., 18:30 (+1:00)	2.4 TWh
Conventional > 100 MW	54.6 GW	08.01., 17:00 (+1:00)	6.9 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 3

Actual production



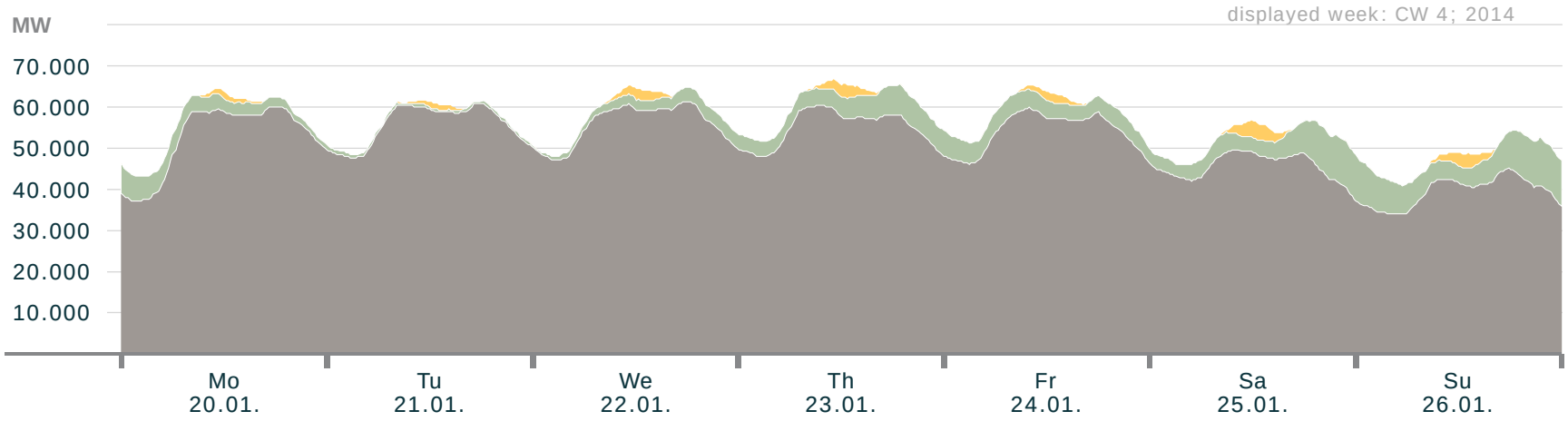
	max. power	date max. power	weekly energy
Solar	7.7 GW	18.01., 12:30 (+1:00)	0.16 TWh
Wind	16.2 GW	10.01., 09:00 (+1:00)	1.0 TWh
Conventional > 100 MW	61.2 GW	14.01., 18:00 (+1:00)	8.2 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 4

Actual production



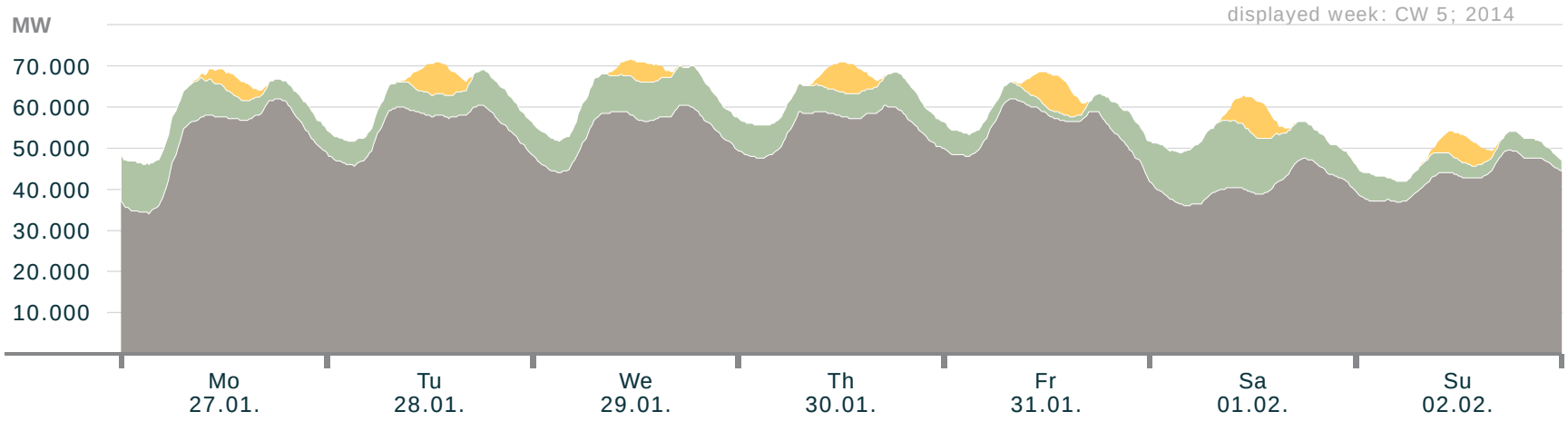
	max. power	date max. power	weekly energy
Solar	4.1 GW	25.01., 12:30 (+1:00)	0.08 TWh
Wind	11.8 GW	26.01., 21:45 (+1:00)	0.71 TWh
Conventional > 100 MW	61.3 GW	22.01., 18:00 (+1:00)	8.6 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 5

Actual production



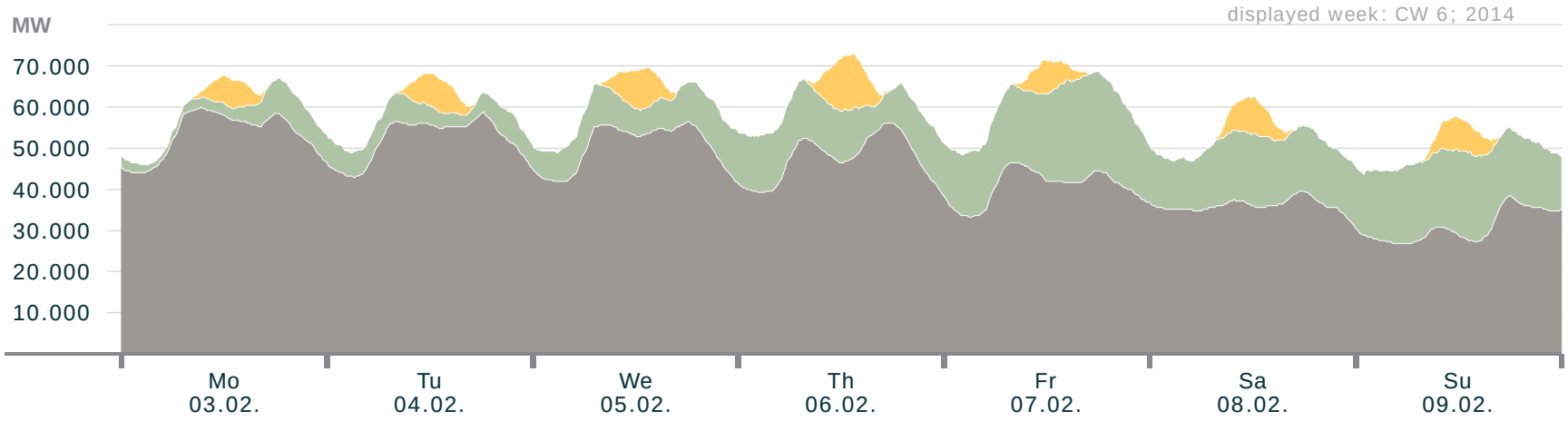
	max. power	date max. power	weekly energy
Solar	8.9 GW	01.02., 12:30 (+1:00)	0.24 TWh
Wind	16.7 GW	01.02., 08:30 (+1:00)	1.23 TWh
Conventional > 100 MW	62.2 GW	31.01., 08:00 (+1:00)	8.5 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 6

Actual production



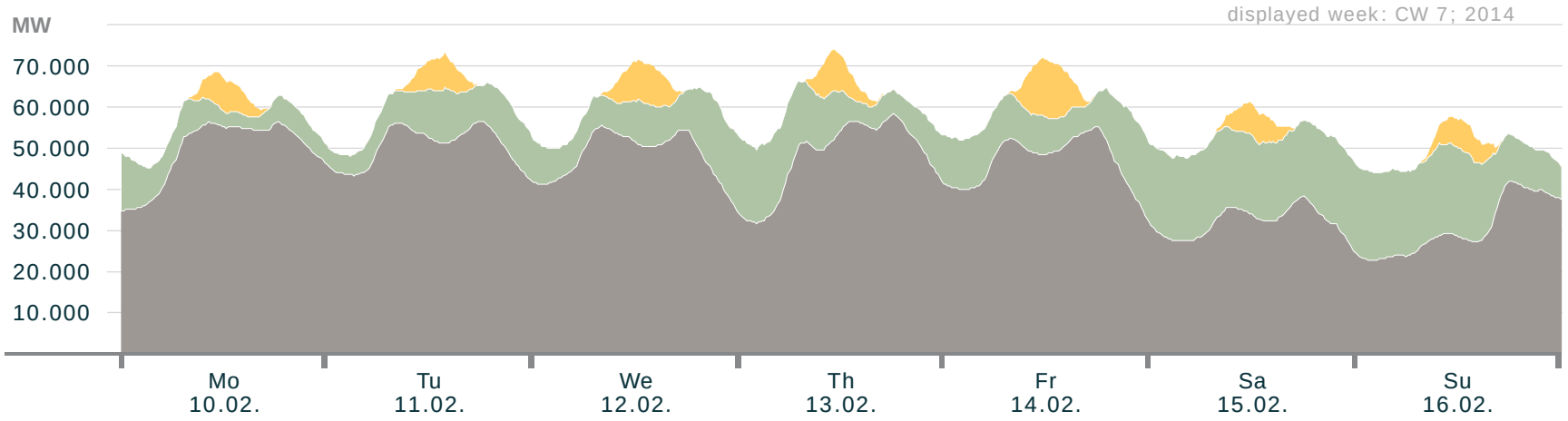
	max. power	date max. power	weekly energy
Solar	13.2 GW	06.02., 13:00 (+1:00)	0.32 TWh
Wind	25.6 GW	07.02., 16:00 (+1:00)	2.0 TWh
Conventional > 100 MW	59.7 GW	03.02., 09:00 (+1:00)	7.5 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 7

Actual production



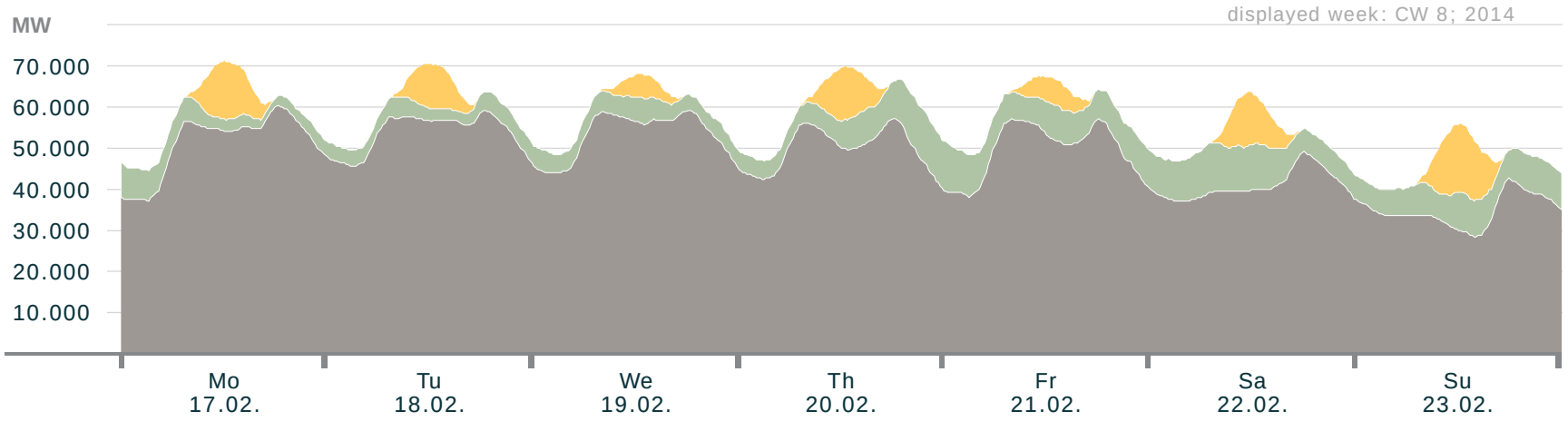
	max. power	date max. power	weekly energy
Solar	14.1 GW	14.02., 11:30 (+1:00)	0.35 TWh
Wind	22.4 GW	16.02., 10:00 (+1:00)	2.1 TWh
Conventional > 100 MW	58.3 GW	13.02., 18:00 (+1:00)	7.3 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 8

Actual production



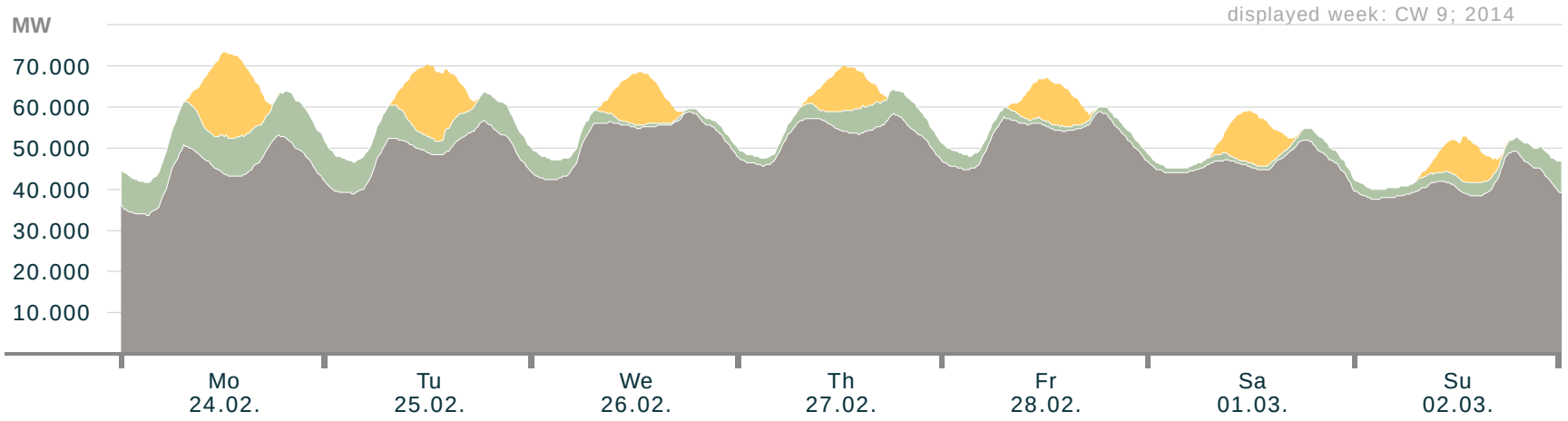
	max. power	date max. power	weekly energy
Solar	16.5 GW	23.02., 12:30 (+1:00)	0.45 TWh
Wind	12.7 GW	20.02., 21:45 (+1:00)	1.1 TWh
Conventional > 100 MW	60.4 GW	17.02., 18:00 (+1:00)	8.0 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 9

Actual production



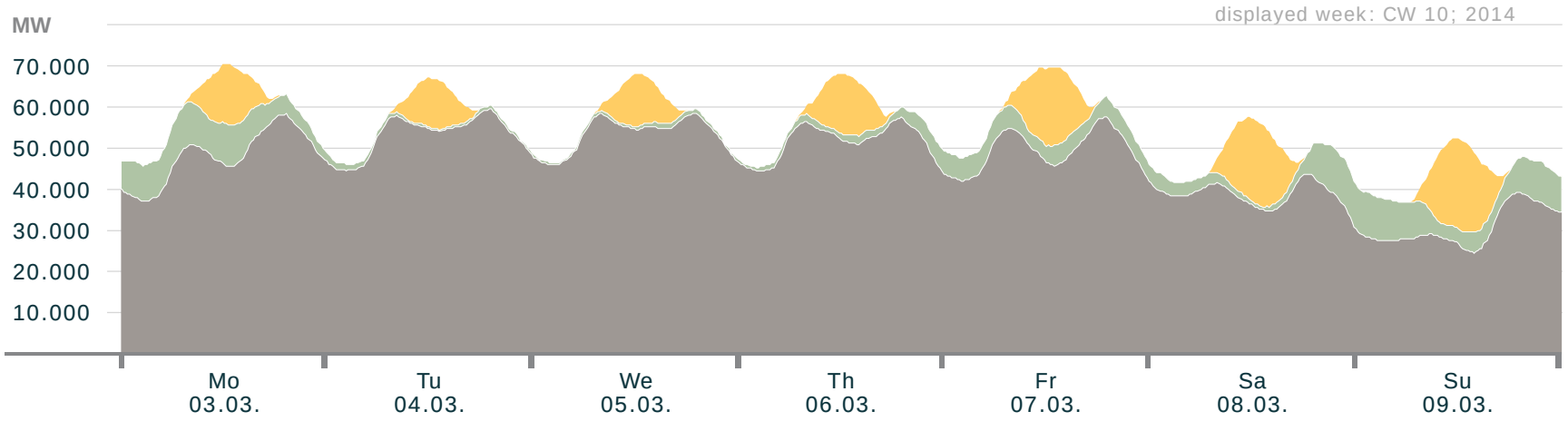
	max. power	date max. power	weekly energy
Solar	20.4 GW	24.02., 12:00 (+1:00)	0.57 TWh
Wind	12.0 GW	24.02., 19:30 (+1:00)	0-7 TWh
Conventional > 100 MW	58.9 GW	26.02., 18:00 (+1:00)	8.1 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 10

Actual production



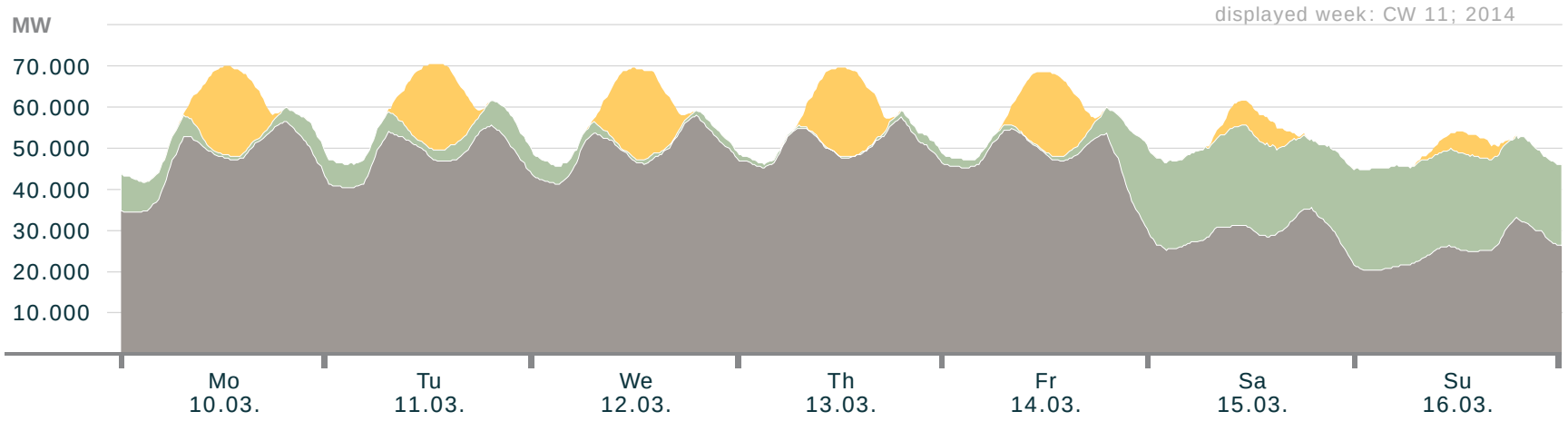
	max. power	date max. power	weekly energy
Solar	21.9 GW	09.03., 12:45 (+1:00)	0.72 TWh
Wind	11.6 GW	08.03., 23:15 (+1:00)	0.66 TWh
Conventional > 100 MW	59.5 GW	04.03., 19:00 (+1:00)	7.8 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 11

Actual production



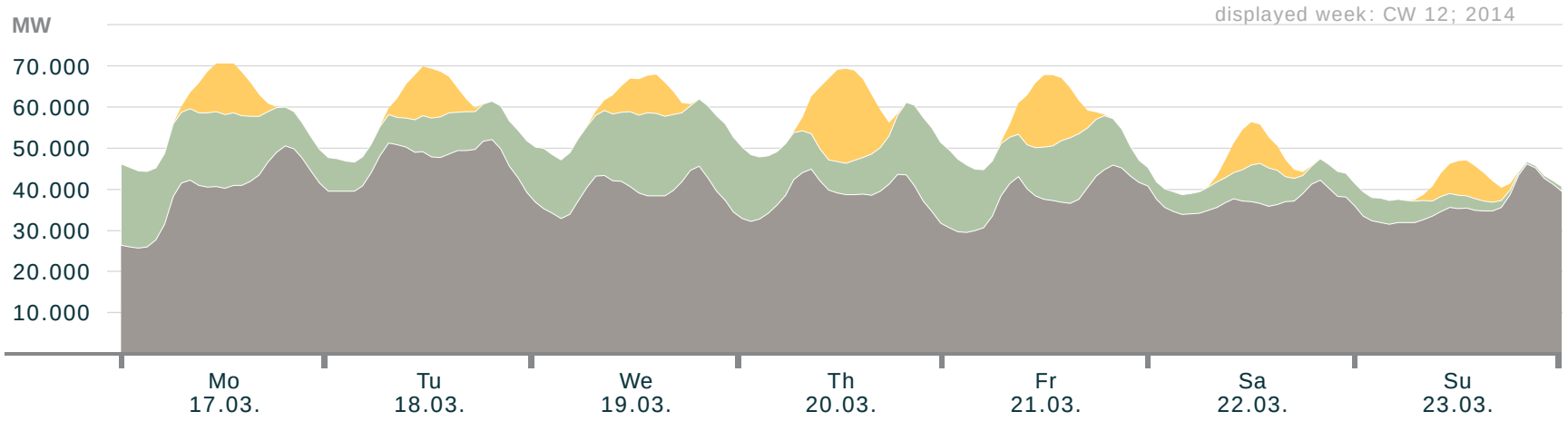
	max. power	date max. power	weekly energy
Solar	22.1 GW	12.03., 12:15 (+1:00)	0.8 TWh
Wind	24.8 GW	16.03., 02:30 (+1:00)	1.44 TWh
Conventional > 100 MW	57.9 GW	12.03., 19:00 (+1:00)	7.2 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 12

Actual production



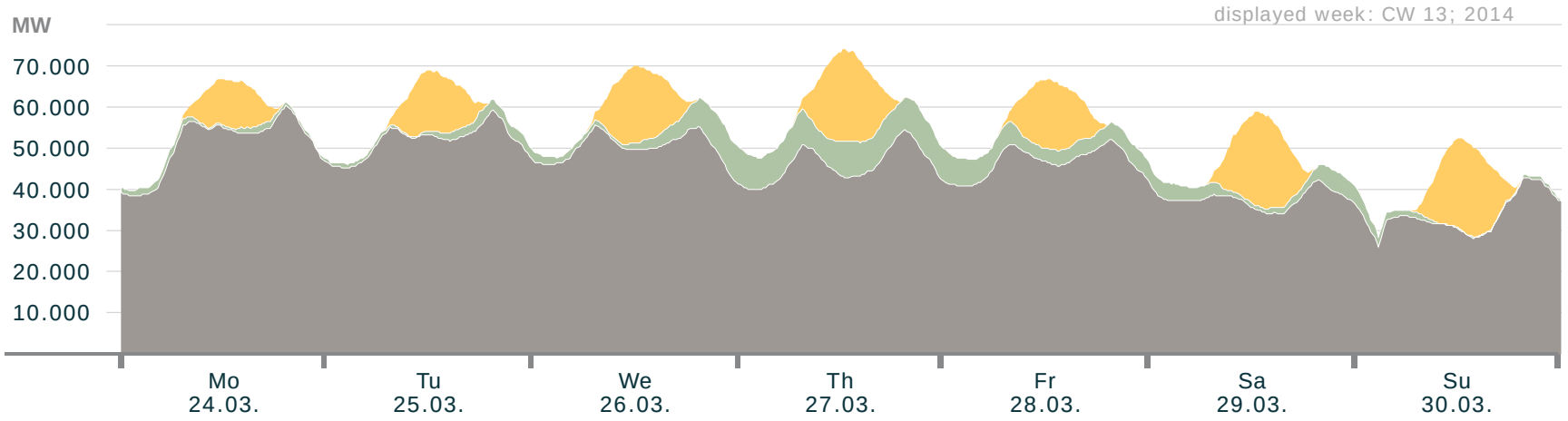
	max. power	date max. power	weekly energy
Solar	23.0 GW	20.03., 12:15 (+1:00)	0.63 TWh
Wind	20.5 GW	20.03., 21:45 (+1:00)	1.81 TWh
Conventional > 100 MW	52.1 GW	18.03., 19:00 (+1:00)	6.6 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 13

Actual production



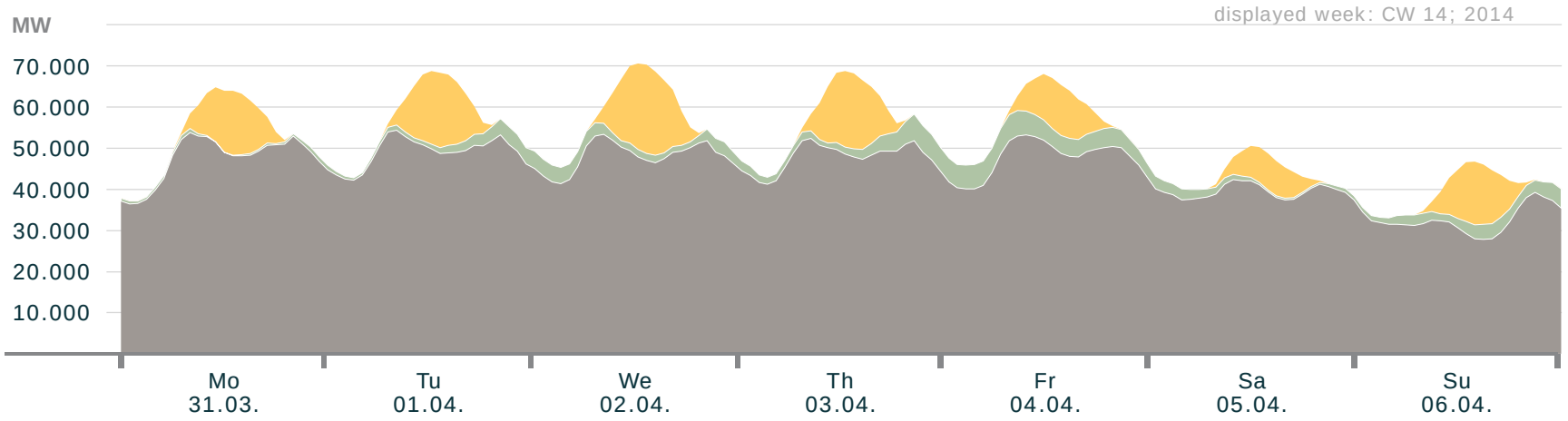
	max. power	date max. power	weekly energy
Solar	22.8 GW	29.03., 12:30 (+1:00)	0.92 TWh
Wind	9.6 GW	26.03., 22:00 (+1:00)	0.55 TWh
Conventional > 100 MW	60.3 GW	24.03., 19:00 (+1:00)	7.6 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 14

Actual production



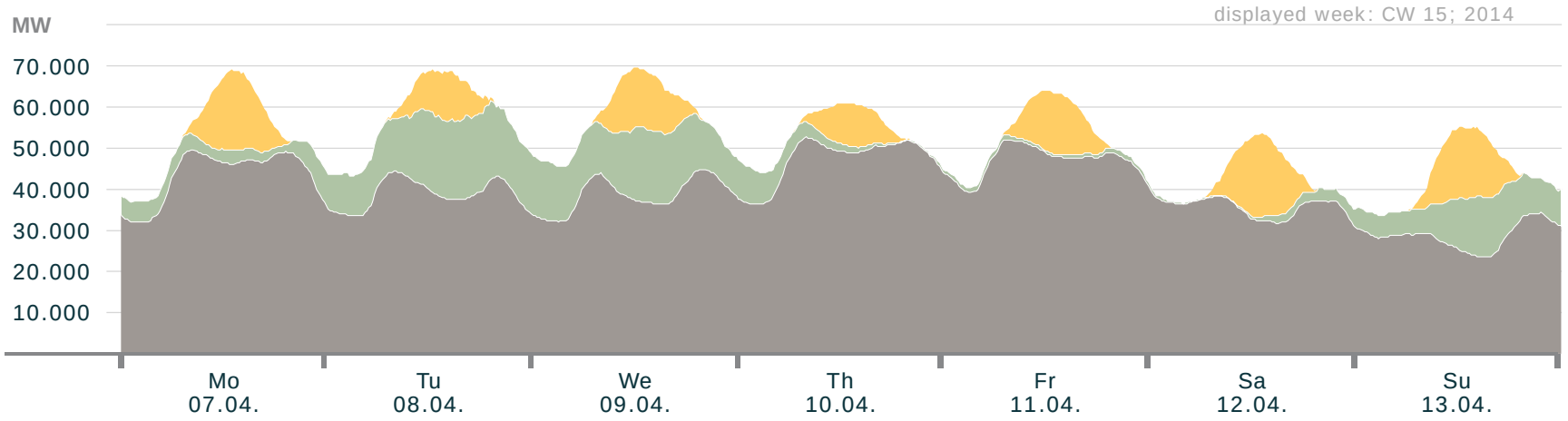
	max. power	date max. power	weekly energy
Solar	21.6 GW	02.04., 13:00 (+2:00)	0.79 TWh
Wind	6.7 GW	03.04., 20:30 (+2:00)	0.41 TWh
Conventional > 100 MW	54.3 GW	01.04., 08:00 (+2:00)	7.5 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 15

Actual production



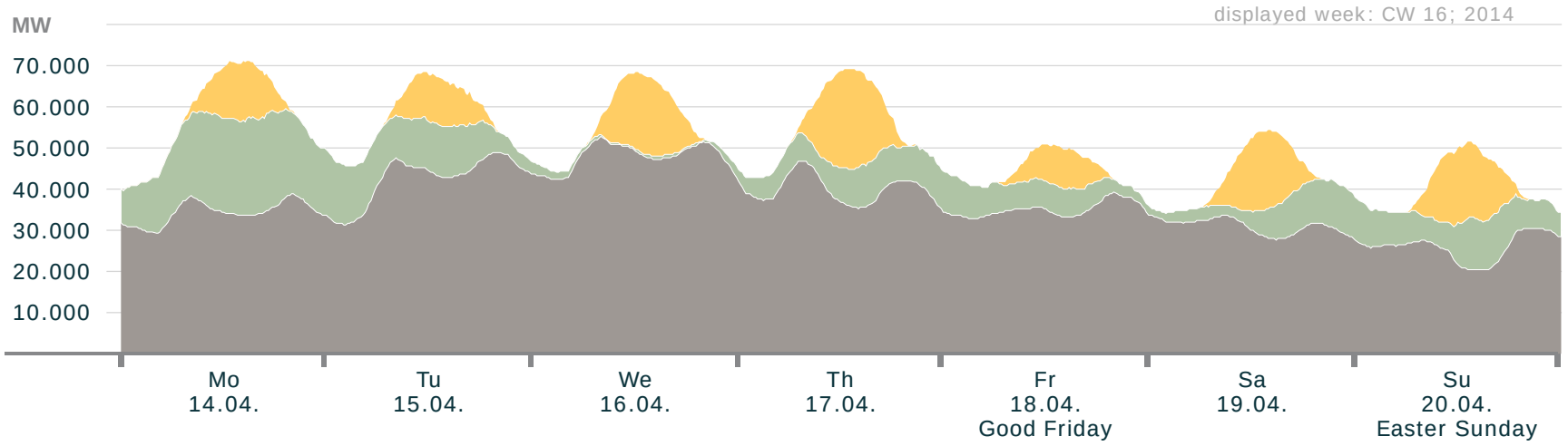
	max. power	date max. power	weekly energy
Solar	20.2 GW	12.04., 13:15 (+2:00)	0.8 TWh
Wind	20.2 GW	08.04., 16:00 (+2:00)	1.2 TWh
Conventional > 100 MW	52.7 GW	10.04., 08:00 (+2:00)	6.7 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 16

Actual production



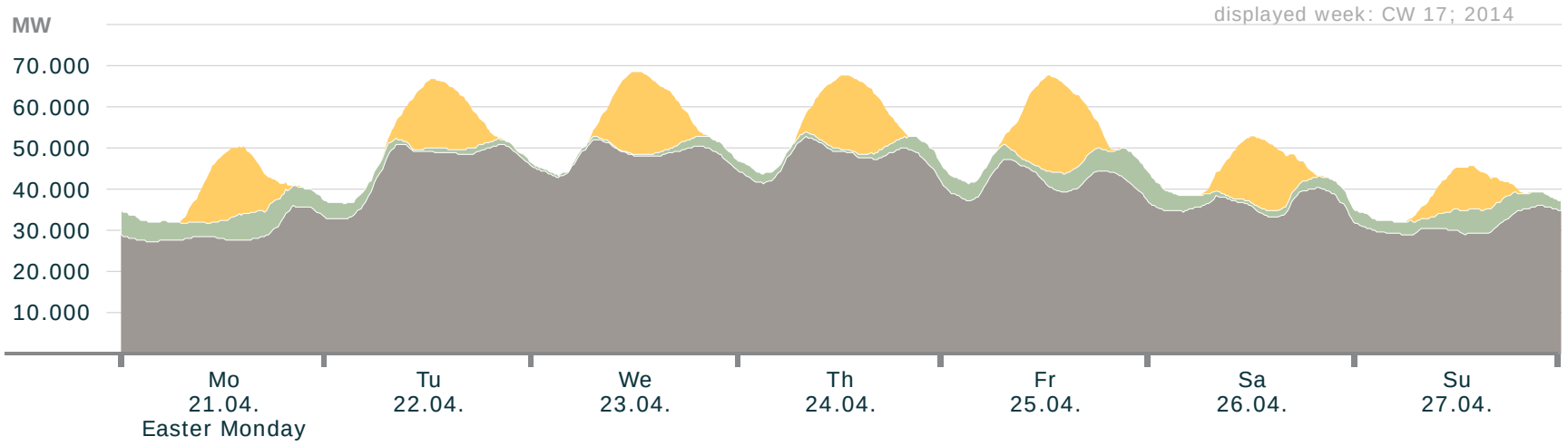
	max. power	date max. power	weekly energy
Solar	24.2 GW	17.04., 13:00 (+2:00)	0.91 TWh
Wind	23.9 GW	14.04., 14:45 (+2:00)	1.4 TWh
Conventional > 100 MW	52.7 GW	16.04., 08:00 (+2:00)	6.2 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 17

Actual production



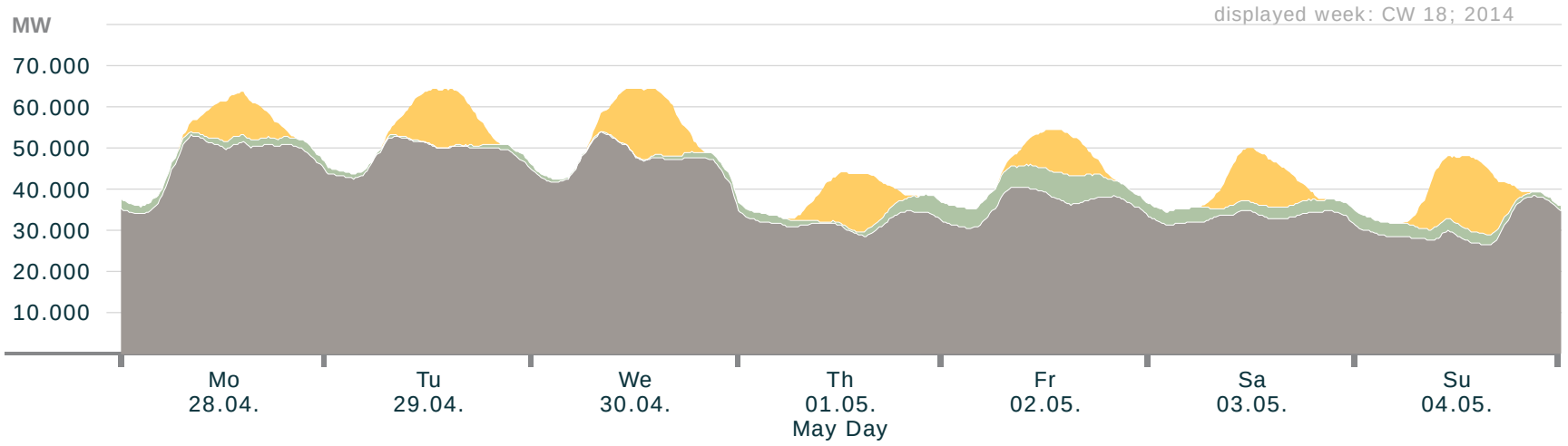
	max. power	date max. power	weekly energy
Solar	23.2 GW	25.04., 12:45 (+2:00)	0.95 TWh
Wind	7.7 GW	25.04., 22:00 (+2:00)	0.5 TWh
Conventional > 100 MW	52.7 GW	24.04., 08:00 (+2:00)	6.7 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 18

Actual production



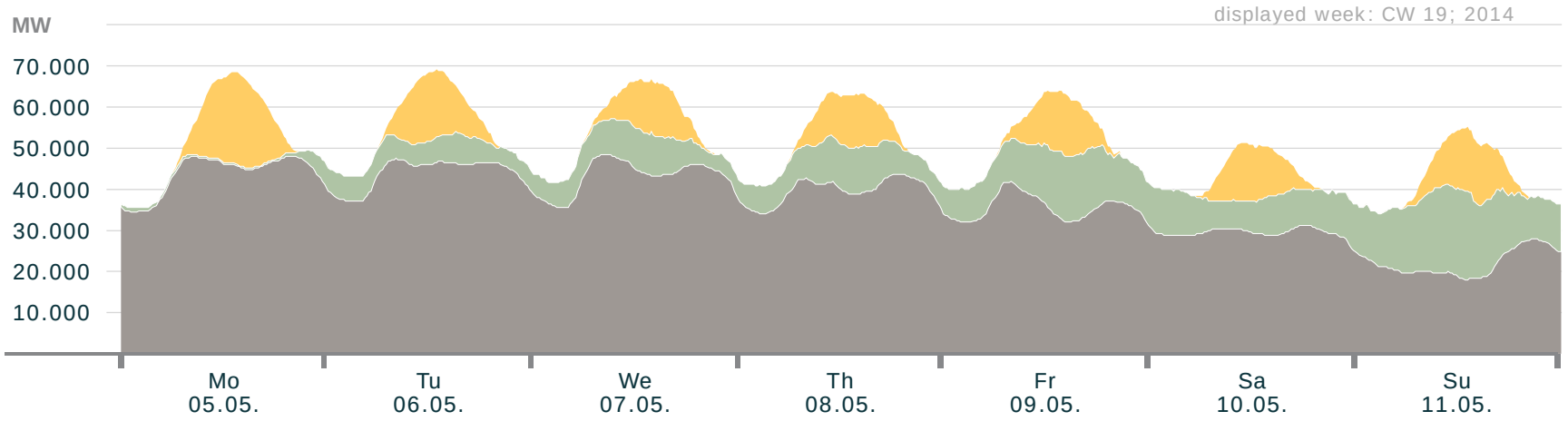
	max. power	date max. power	weekly energy
Solar	17.9 GW	04.05., 14:00 (+2:00)	0.78 TWh
Wind	7.0 GW	02.05., 15:00 (+2:00)	0.37 TWh
Conventional > 100 MW	53.9 GW	30.04., 08:00 (+2:00)	6.6 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 19

Actual production



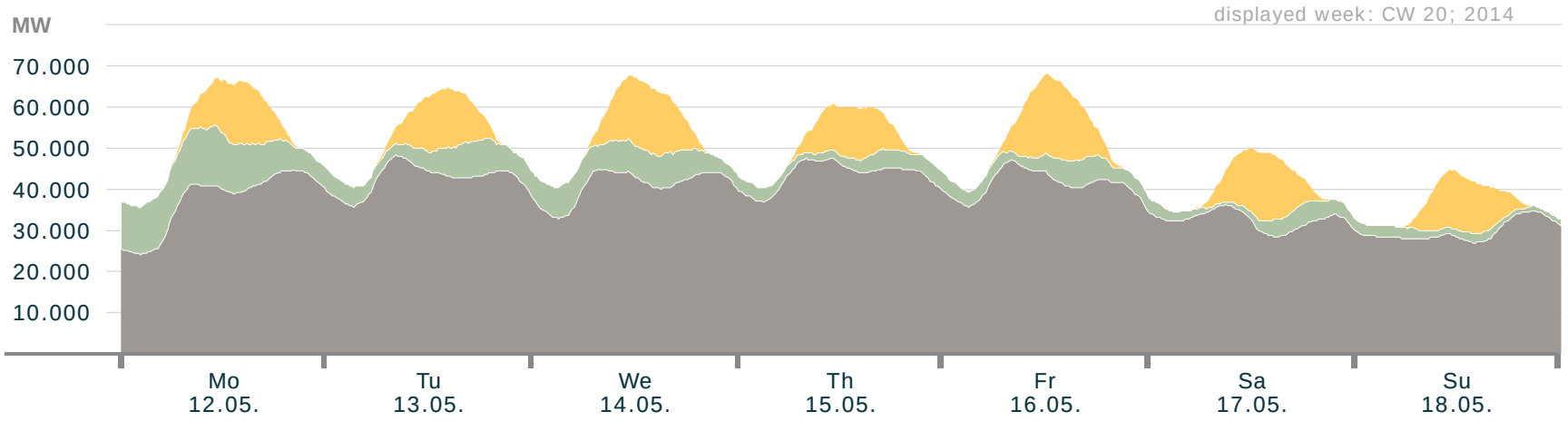
	max. power	date max. power	weekly energy
Solar	22.4 GW	05.05., 13:15 (+2:00)	0.87 TWh
Wind	21.7 GW	11.05., 13:00 (+2:00)	1.41 TWh
Conventional > 100 MW	48.4 GW	07.05., 08:00 (+2:00)	6.2 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 20

Actual production



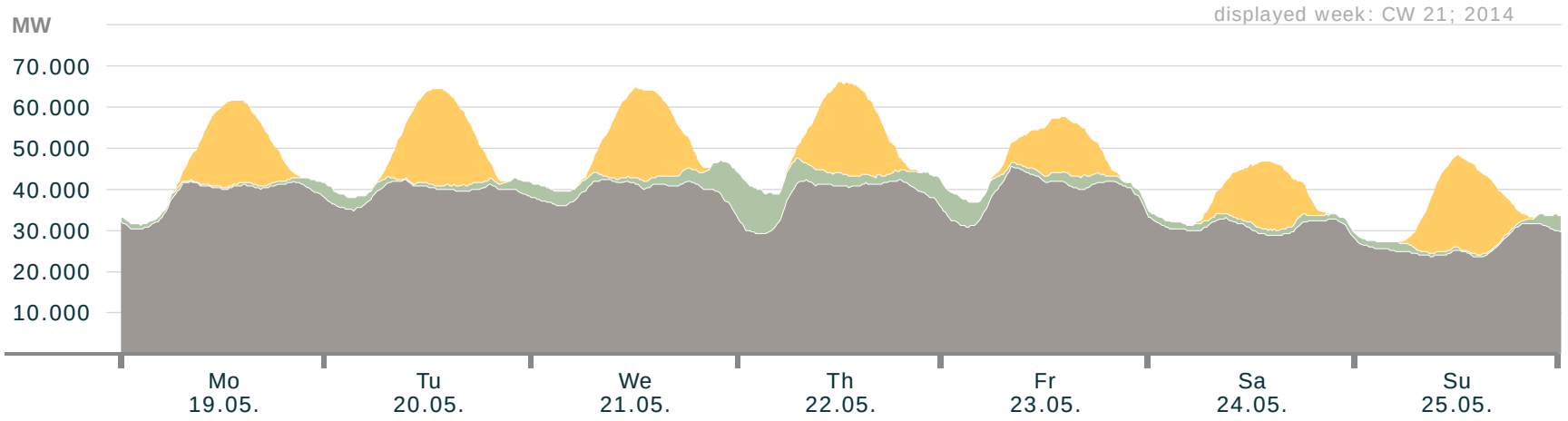
	max. power	date max. power	weekly energy
Solar	19.6 GW	16.05., 12:30 (+2:00)	0.92 TWh
Wind	14.7 GW	12.05., 10:45 (+2:00)	0.84 TWh
Conventional > 100 MW	48.4 GW	13.05., 08:00 (+2:00)	6.4 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 21

Actual production



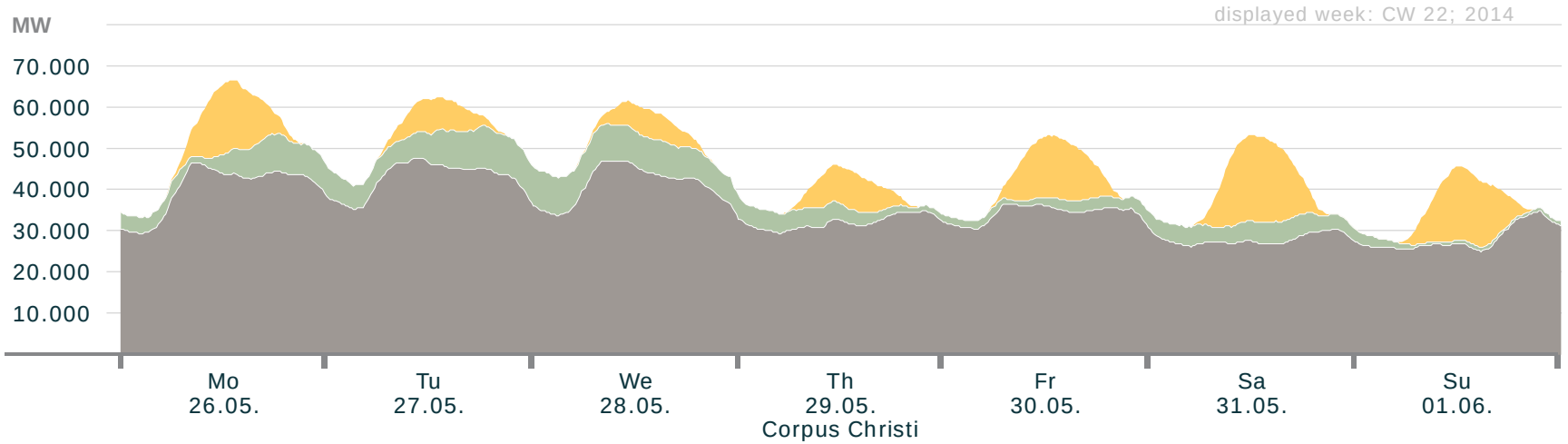
	max. power	date max. power	weekly energy
Solar	23.5 GW	20.05., 12:45 (+2:00)	1.19 TWh
Wind	11.9 GW	22.05., 01:00 (+2:00)	0.39 TWh
Conventional > 100 MW	45.5 GW	23.05., 08:00 (+2:00)	6.1 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 22

Actual production



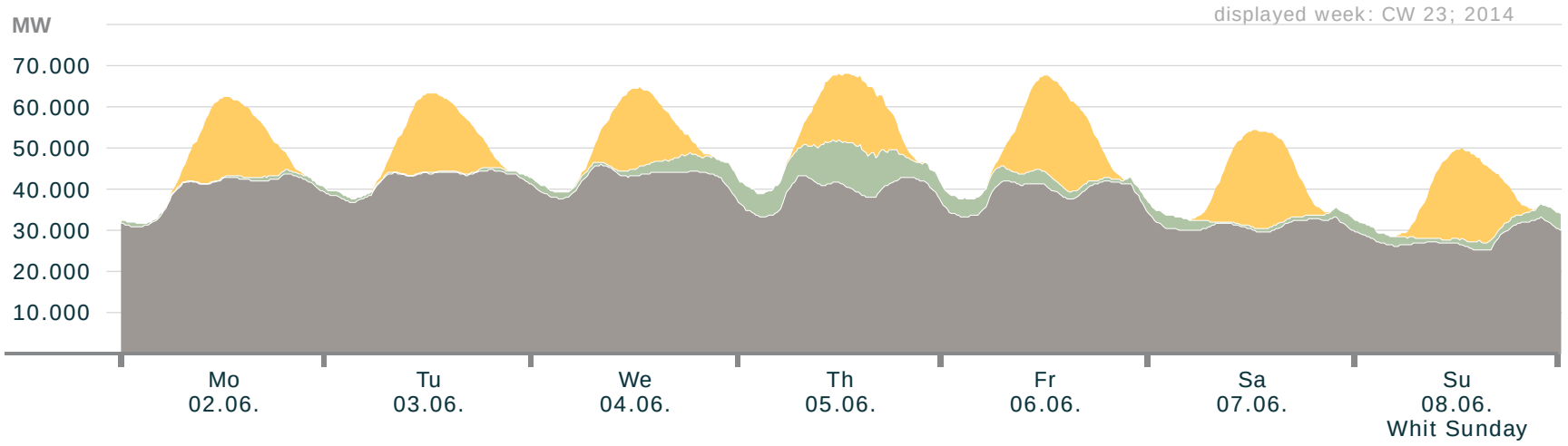
	max. power	date max. power	weekly energy
Solar	20.9 GW	31.05., 12:15 (+2:00)	0.83 TWh
Wind	10.5 GW	27.05., 18:45 (+2:00)	0.79 TWh
Conventional > 100 MW	47.5 GW	27.05., 10:00 (+2:00)	5.9 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 23

Actual production



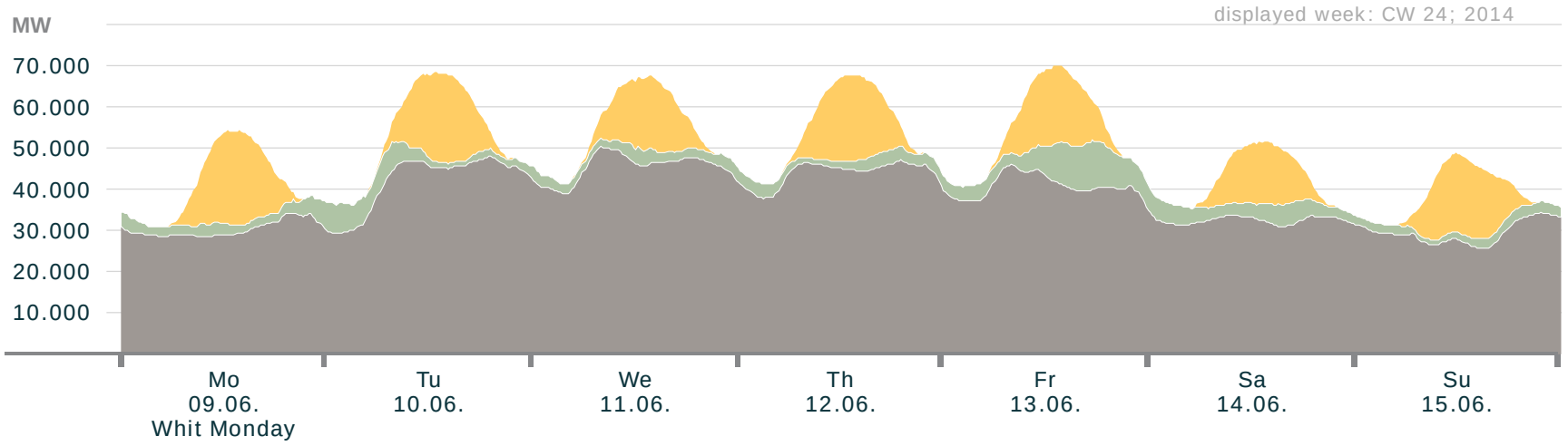
	max. power	date max. power	weekly energy
Solar	24.2 GW	06.06., 13:00 (+2:00)	1.26 TWh
Wind	11.8 GW	05.06., 14:15 (+2:00)	0.42 TWh
Conventional > 100 MW	46.0 GW	04.06., 08:00 (+2:00)	6.3 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 24

Actual production



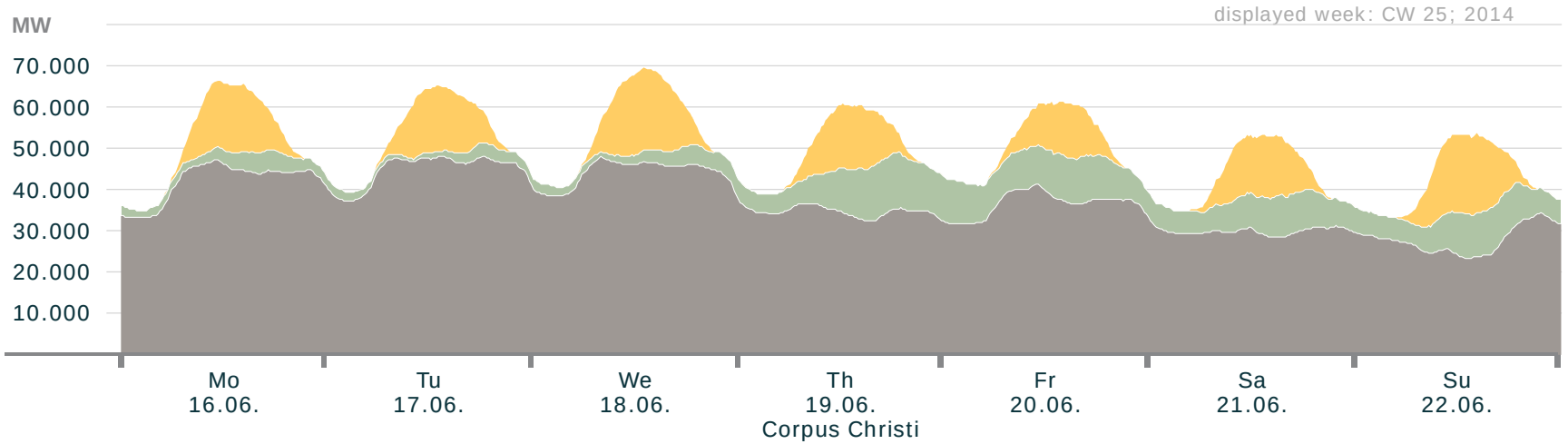
	max. power	date max. power	weekly energy
Solar	23.1 GW	09.06., 13:00 (+2:00)	1.2 TWh
Wind	12.0 GW	13.06., 17:30 (+2:00)	0.59 TWh
Conventional > 100 MW	50.3 GW	11.06., 08:00 (+2:00)	6.3 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 25

Actual production



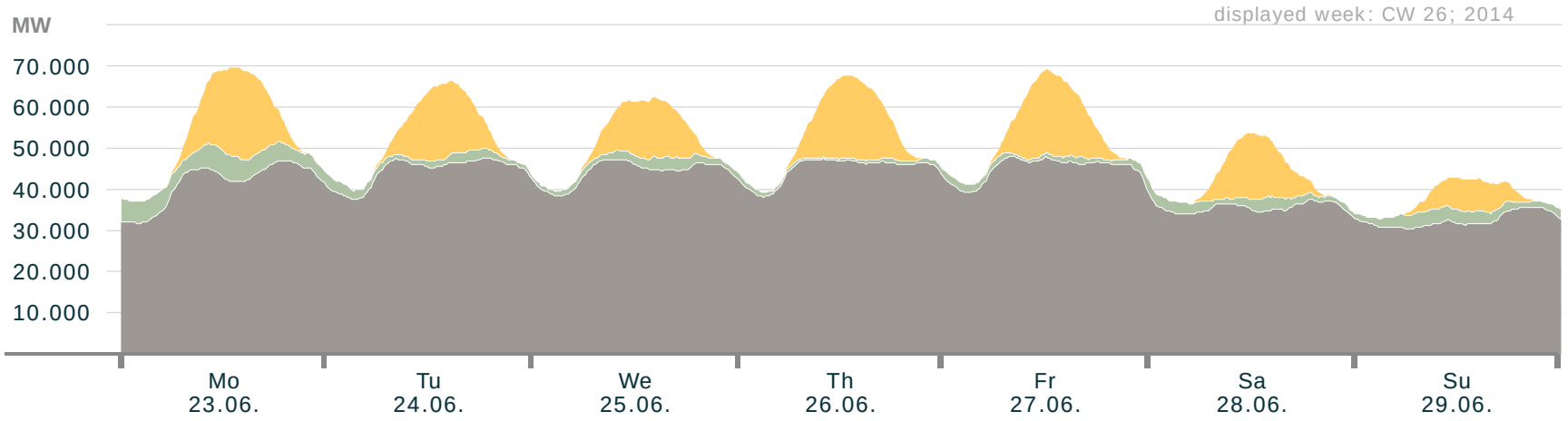
	max. power	date max. power	weekly energy
Solar	20.0 GW	18.06., 13:00 (+2:00)	1.06 TWh
Wind	13.7 GW	19.06., 18:45 (+2:00)	1.01 TWh
Conventional > 100 MW	48.1 GW	17.06., 18:00 (+2:00)	6.2 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 26

Actual production



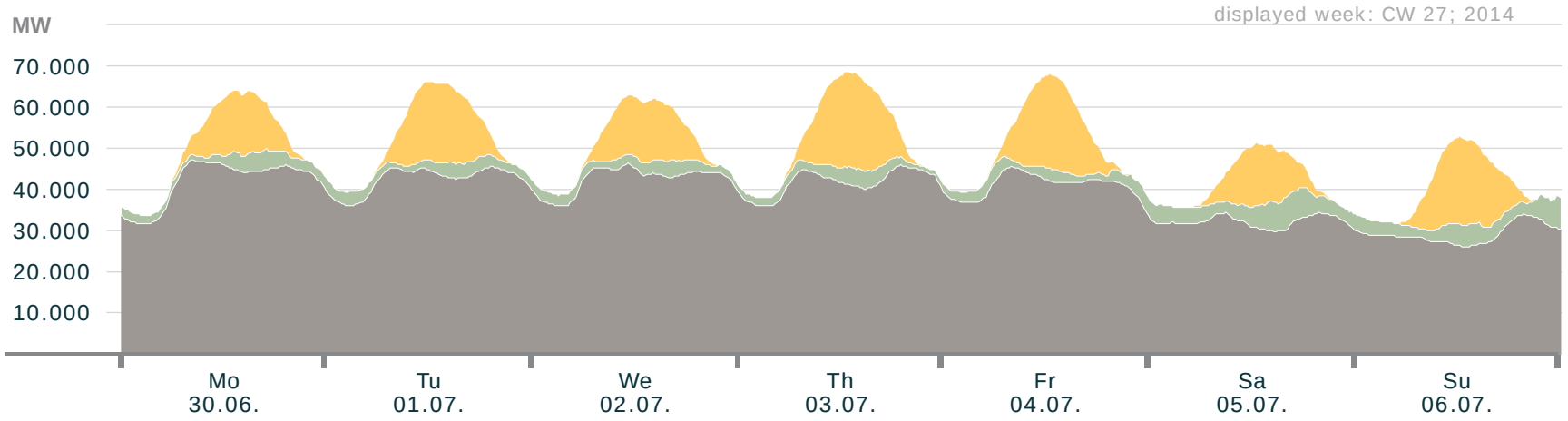
	max. power	date max. power	weekly energy
Solar	22.0 GW	23.06., 13:30 (+2:00)	1.03 TWh
Wind	6.5 GW	23.06., 11:45 (+2:00)	0.37 TWh
Conventional > 100 MW	48.0 GW	27.06., 08:00 (+2:00)	6.9 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 27

Actual production



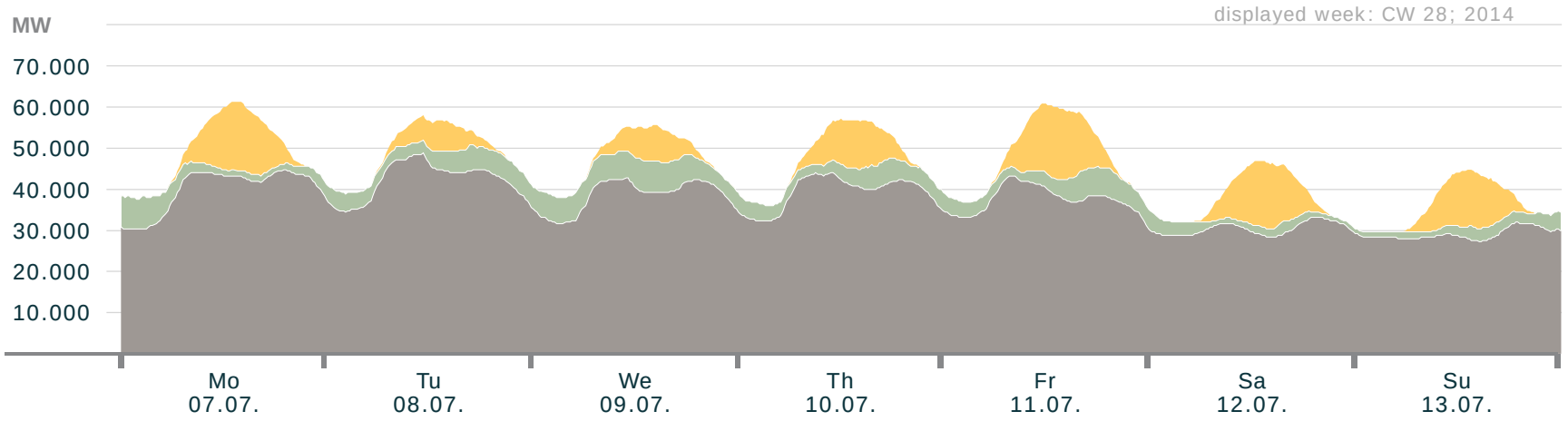
	max. power	date max. power	weekly energy
Solar	23.0 GW	03.07., 13:30 (+2:00)	1.14 TWh
Wind	8.0 GW	05.07., 16:15 (+2:00)	0.52 TWh
Conventional > 100 MW	47.2 GW	30.06., 08:00 (+2:00)	6.5 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 28

Actual production



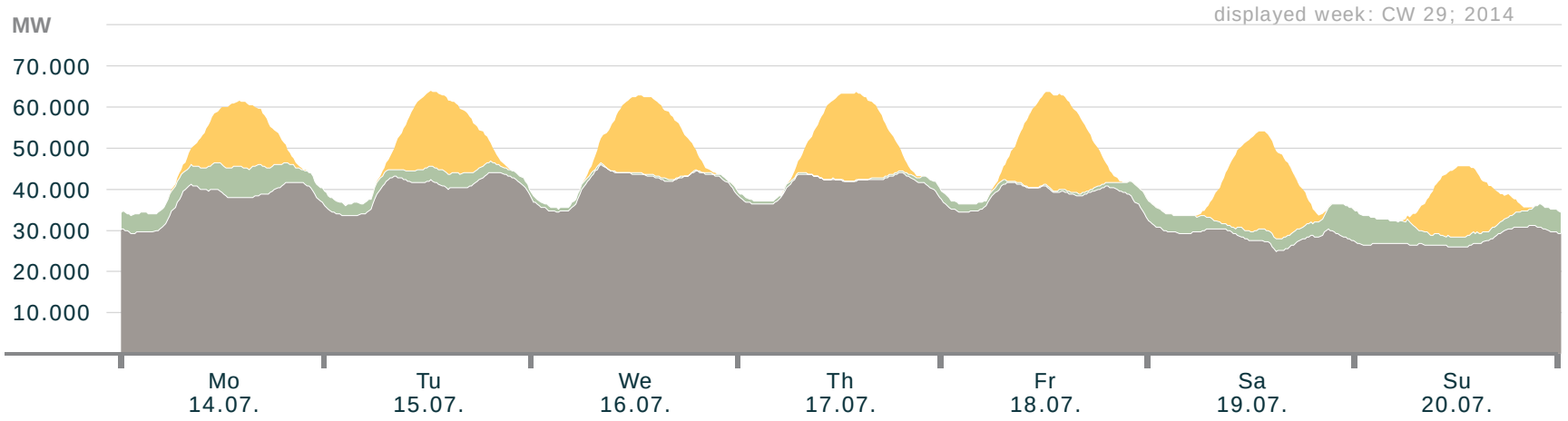
	max. power	date max. power	weekly energy
Solar	17.4 GW	11.07., 13:45 (+2:00)	0.77 TWh
Wind	8.1 GW	07.07., 02:15 (+2:00)	0.64 TWh
Conventional > 100 MW	48.6 GW	08.07., 11:00 (+2:00)	6.2 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 29

Actual production



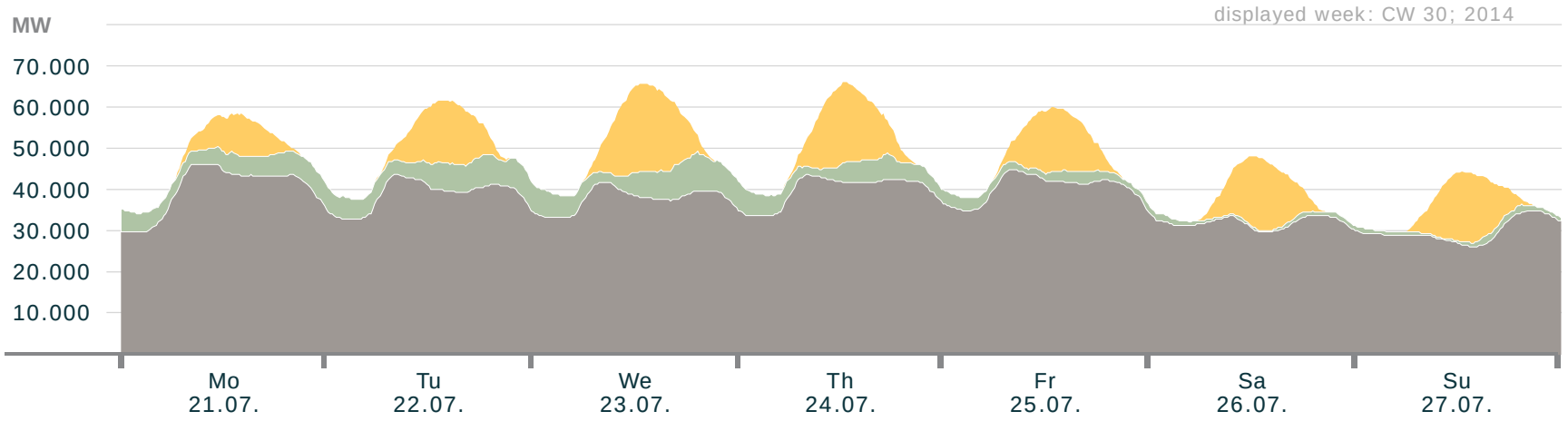
	max. power	date max. power	weekly energy
Solar	23.6 GW	19.07., 13:00 (+2:00)	1.2 TWh
Wind	7.9 GW	19.07., 23:45 (+2:00)	0.44 TWh
Conventional > 100 MW	46.2 GW	16.07., 08:00 (+2:00)	6.1 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 30

Actual production



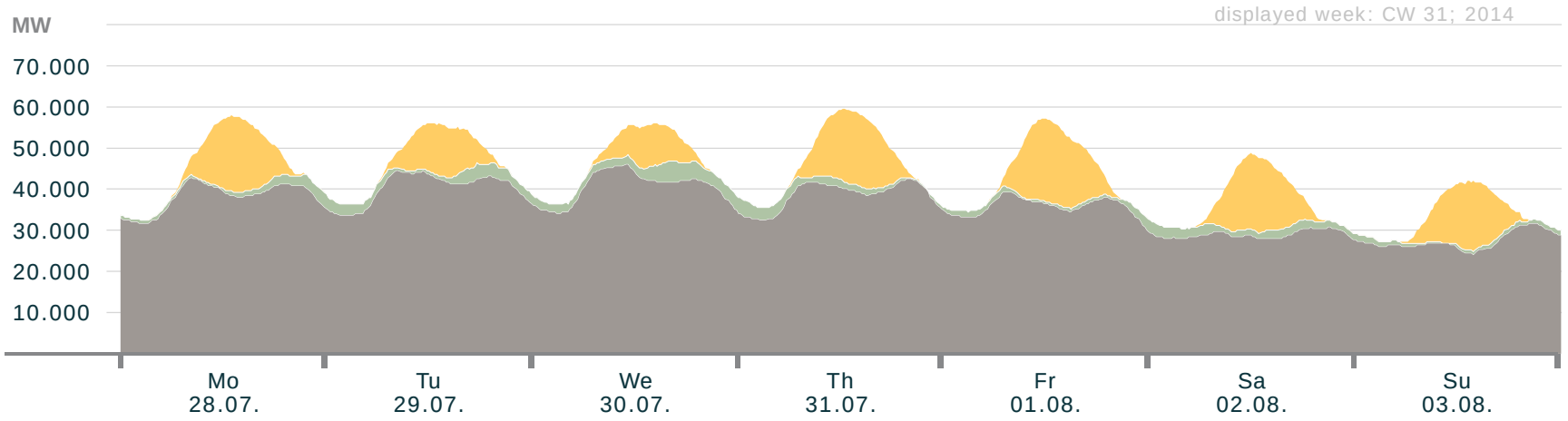
	max. power	date max. power	weekly energy
Solar	21.3 GW	23.07., 12:45 (+2:00)	0.96 TWh
Wind	9.5 GW	23.07., 19:15 (+2:00)	0.60 TWh
Conventional > 100 MW	46.2 GW	16.07., 08:00 (+2:00)	6.1 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 31

Actual production



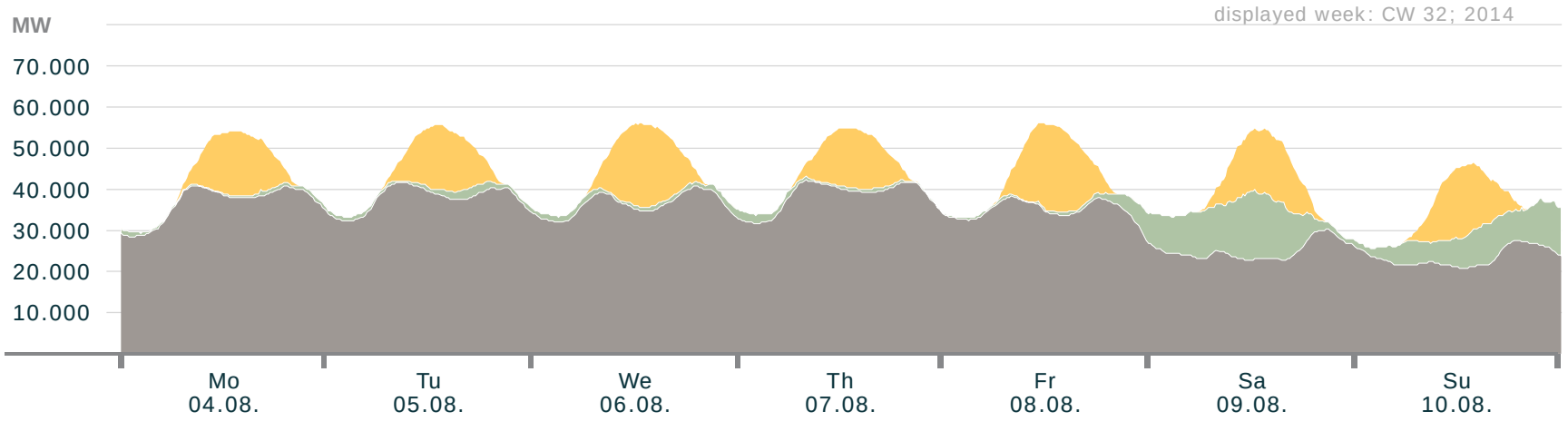
	max. power	date max. power	weekly energy
Solar	20.2 GW	01.08., 12:00 (+2:00)	0.93 TWh
Wind	5.2 GW	30.07., 15:45 (+2:00)	0.30 TWh
Conventional > 100 MW	46.0 GW	30.07., 11:00 (+2:00)	5.8 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 32

Actual production



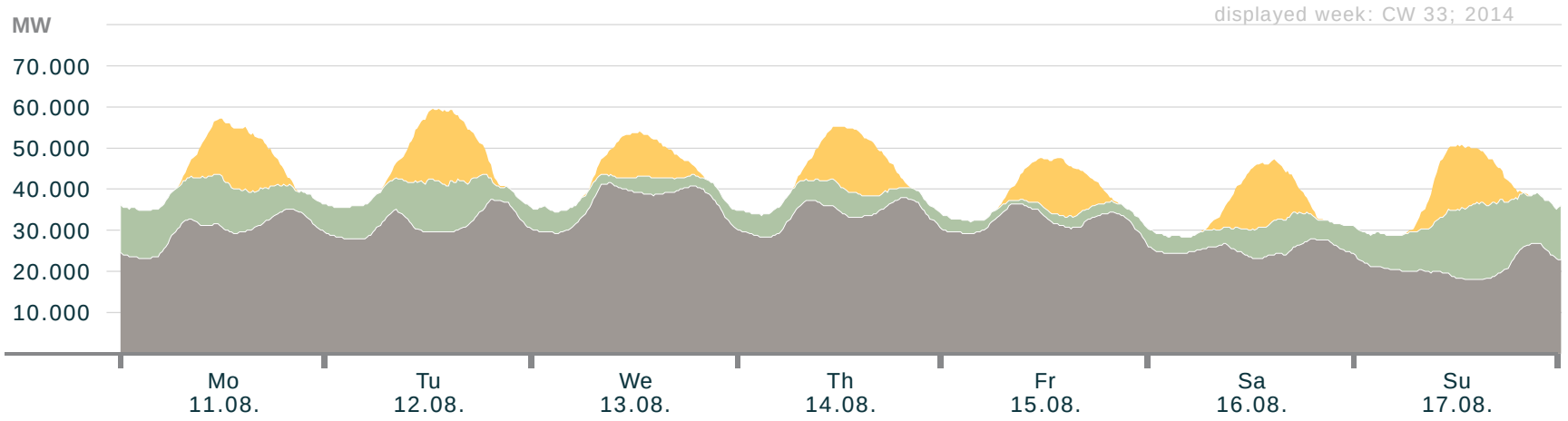
	max. power	date max. power	weekly energy
Solar	21.1 GW	08.08., 12:45 (+2:00)	0.98 TWh
Wind	16.8 GW	09.08., 12:30 (+2:00)	0.51 TWh
Conventional > 100 MW	42.3 GW	07.08., 08:00 (+2:00)	5.6 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 33

Actual production



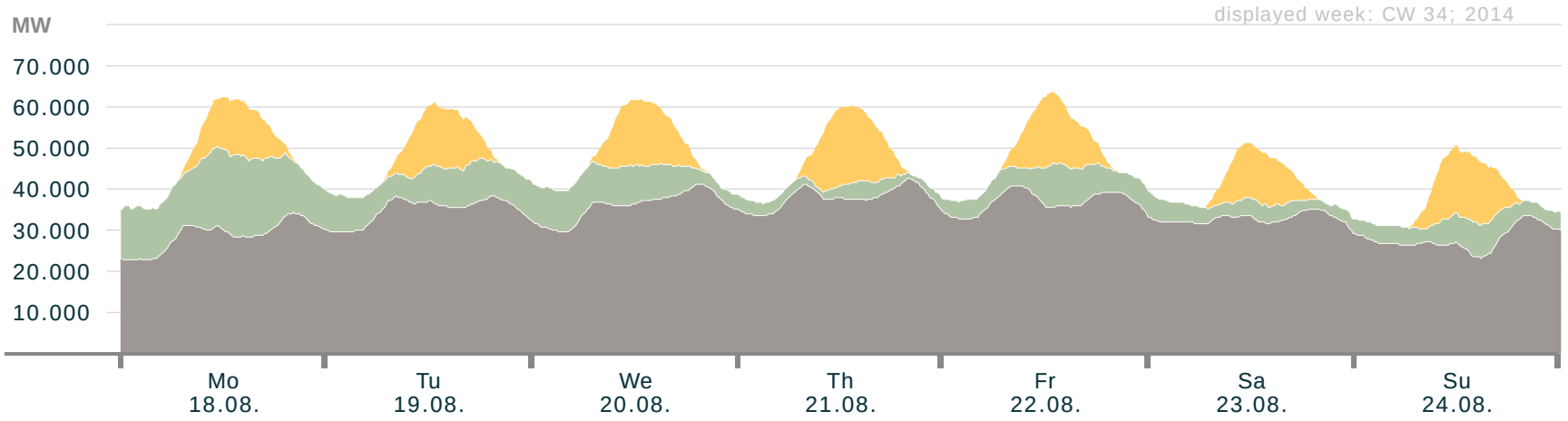
	max. power	date max. power	weekly energy
Solar	17.8 GW	12.08., 13:45 (+2:00)	0.83 TWh
Wind	18.8 GW	17.08., 14:30 (+2:00)	1.13 TWh
Conventional > 100 MW	41.6 GW	13.08., 09:00 (+2:00)	5.1 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 34

Actual production



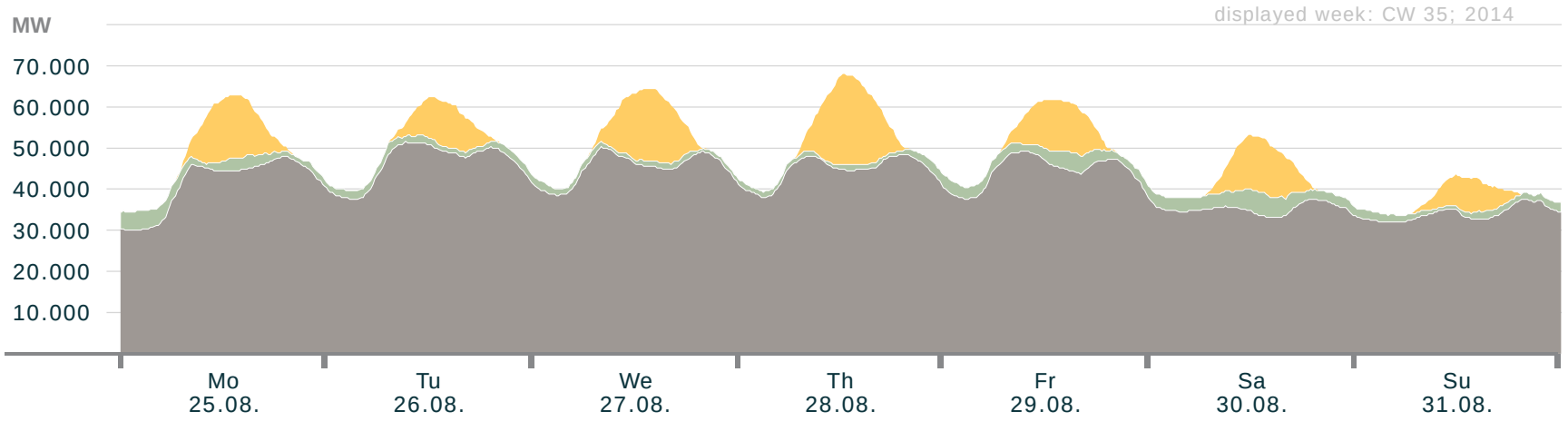
	max. power	date max. power	weekly energy
Solar	19.1 GW	21.08., 12:00 (+2:00)	0.89 TWh
Wind	20.0 GW	18.08., 13:15 (+2:00)	1.18 TWh
Conventional > 100 MW	42.7 GW	21.08., 20:00 (+2:00)	5.6 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 35

Actual production



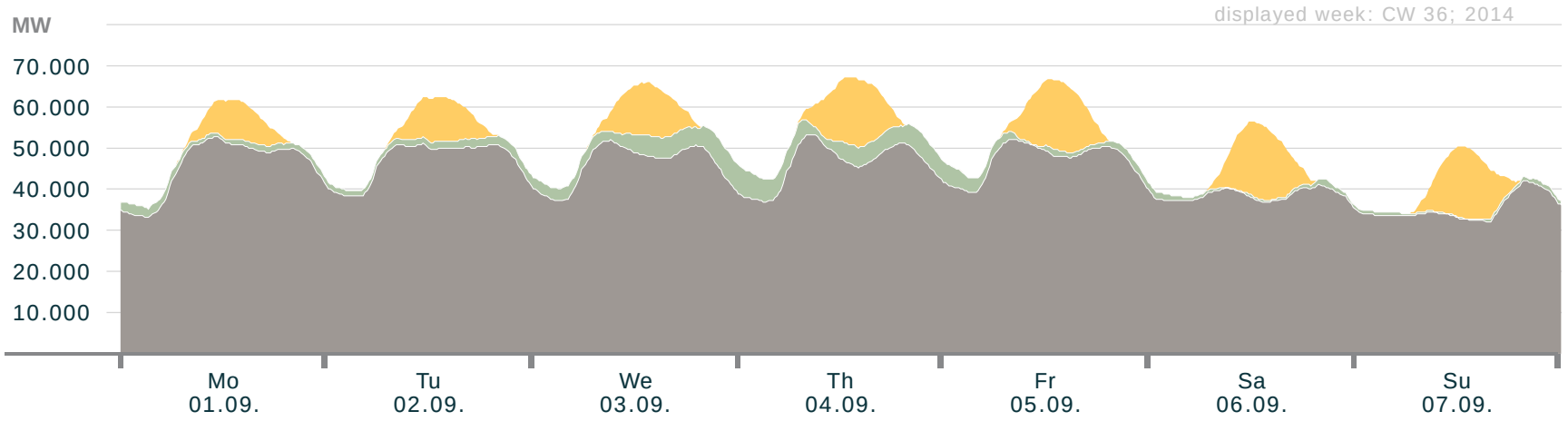
	max. power	date max. power	weekly energy
Solar	22.0 GW	28.08., 12:30 (+2:00)	0.76 TWh
Wind	5.9 GW	30.08., 13:30 (+2:00)	0.36 TWh
Conventional > 100 MW	51.5 GW	26.08., 09:00 (+2:00)	7.0 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 36

Actual production



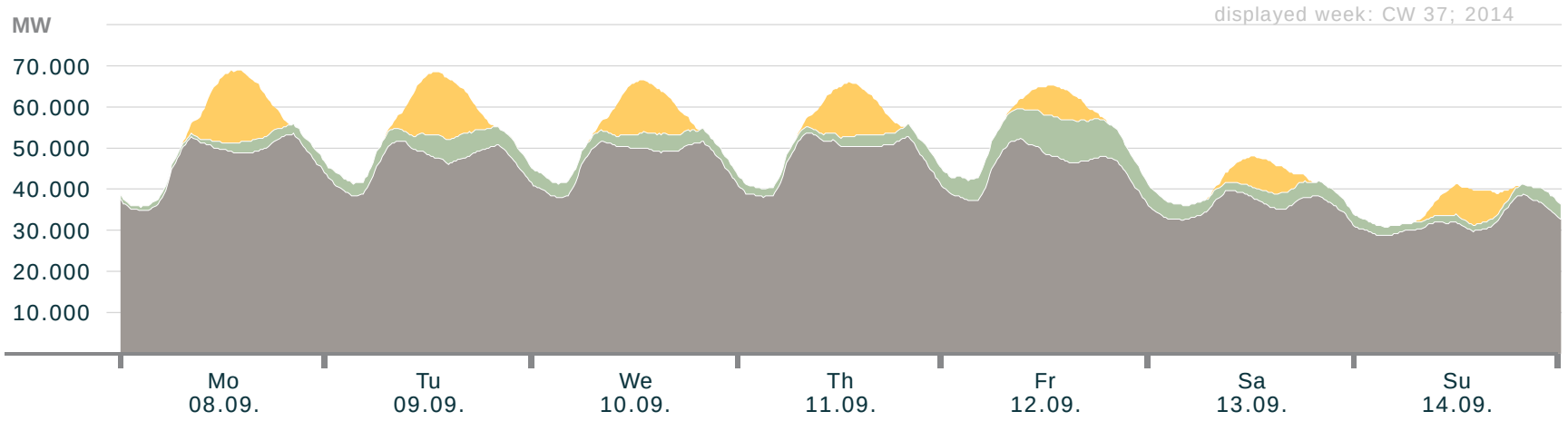
	max. power	date max. power	weekly energy
Solar	18.4 GW	06.09., 12:30 (+2:00)	0.75 TWh
Wind	7.3 GW	03.09., 23:00 (+2:00)	0.38 TWh
Conventional > 100 MW	53.2 GW	04.09., 09:00 (+2:00)	7.3 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 37

Actual production



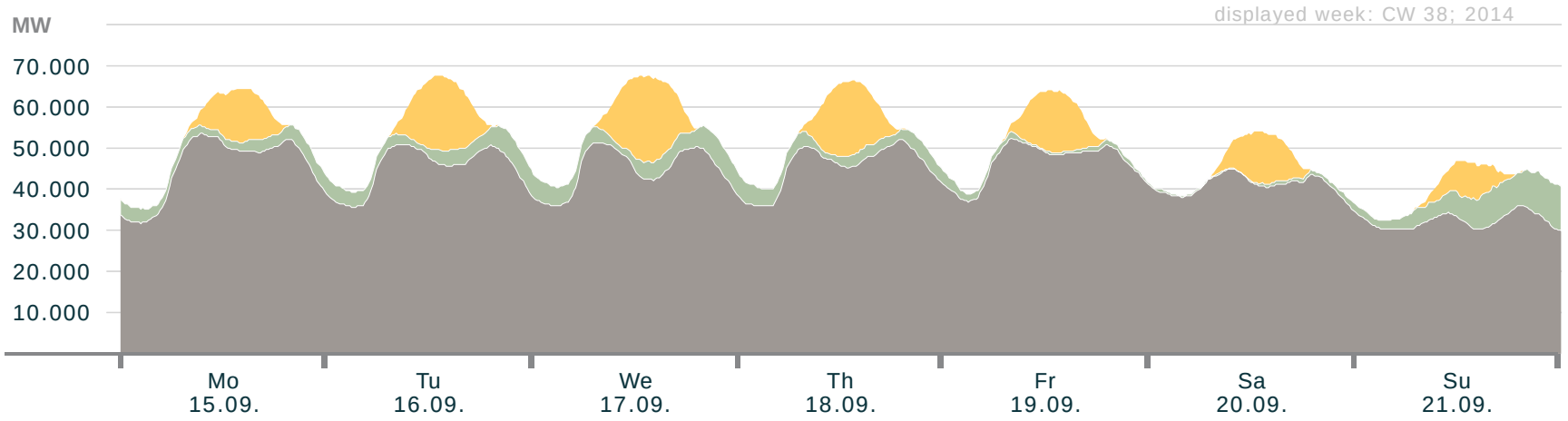
	max. power	date max. power	weekly energy
Solar	17.4 GW	08.09., 12:45 (+2:00)	0.58 TWh
Wind	10.5 GW	12.09., 15:00 (+2:00)	0.59 TWh
Conventional > 100 MW	53.8 GW	11.09., 08:00 (+2:00)	7.2 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 38

Actual production



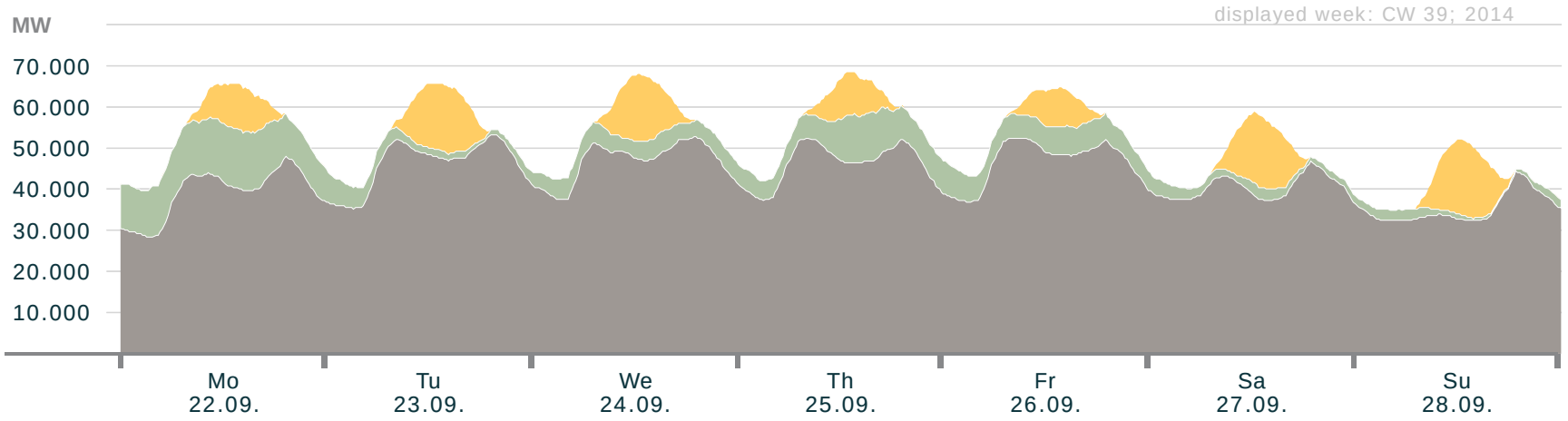
	max. power	date max. power	weekly energy
Solar	20.8 GW	17.09., 13:30 (+2:00)	0.73 TWh
Wind	10.7 GW	21.09., 23:45 (+2:00)	0.53 TWh
Conventional > 100 MW	53.7 GW	15.09., 09:00 (+2:00)	7.2 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 39

Actual production



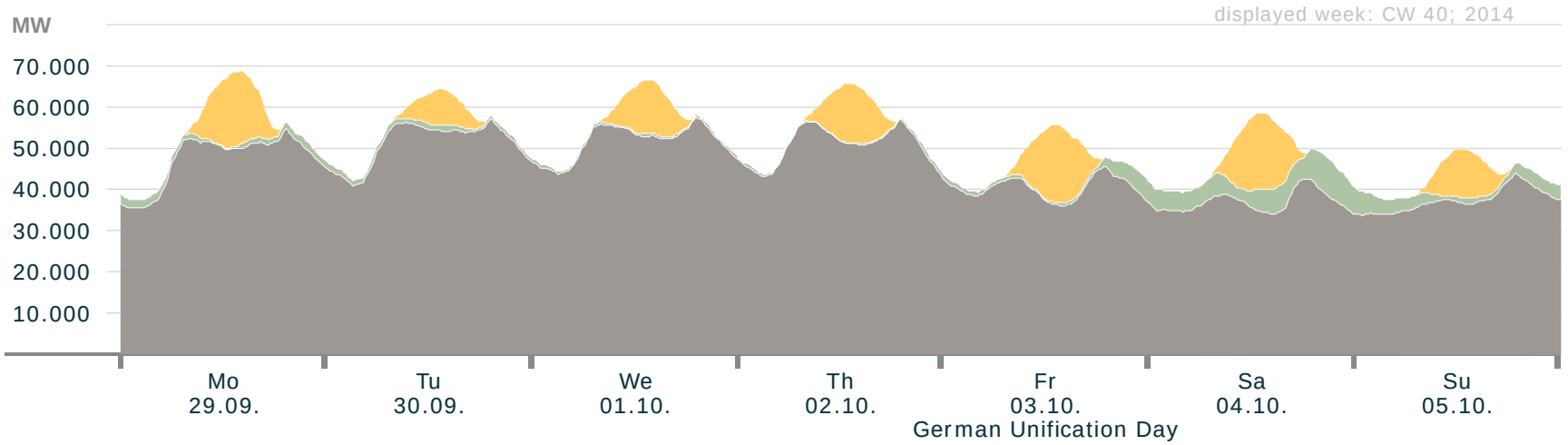
	max. power	date max. power	weekly energy
Solar	18.2 GW	28.09., 12:45 (+2:00)	0.66 TWh
Wind	14.6 GW	22.09., 12:45 (+2:00)	0.89 TWh
Conventional > 100 MW	53.3 GW	23.09., 19:00 (+2:00)	7.2 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 40

Actual production



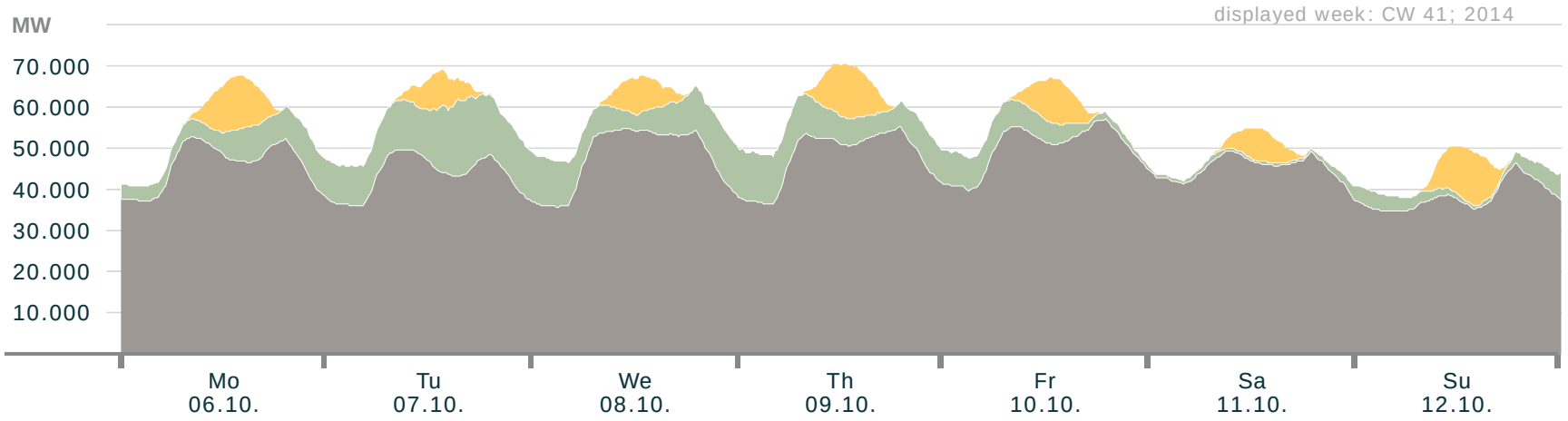
	max. power	date max. power	weekly energy
Solar	18.7 GW	03.10., 13:30 (+2:00)	0.65 TWh
Wind	9.3 GW	04.10., 21:00 (+2:00)	0.32 TWh
Conventional > 100 MW	57.6 GW	01.10., 19:00 (+2:00)	7.6 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 41

Actual production



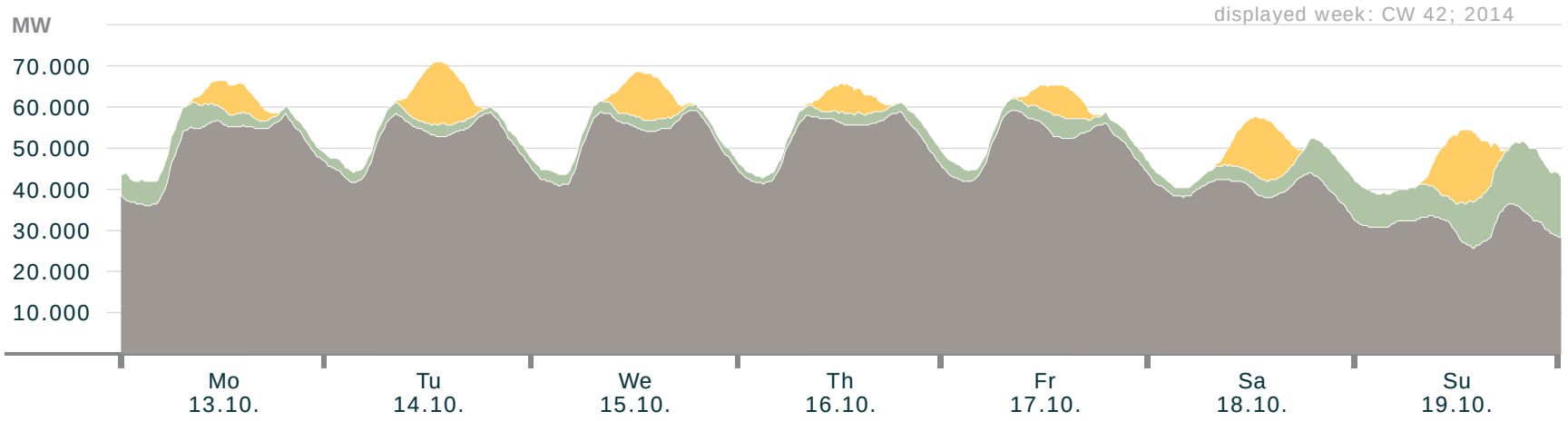
	max. power	date max. power	weekly energy
Solar	13.1 GW	12.10., 13:45 (+2:00)	0.45 TWh
Wind	18.7 GW	07.10., 15:15 (+2:00)	1.08 TWh
Conventional > 100 MW	57.0 GW	10.10., 19:00 (+2:00)	7.6 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 42

Actual production



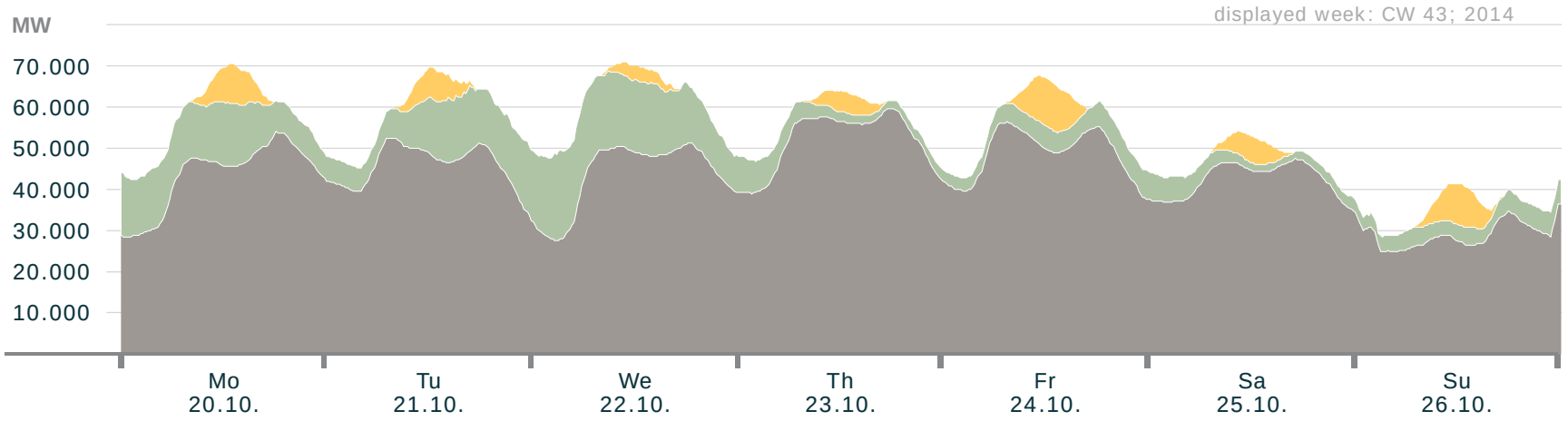
	max. power	date max. power	weekly energy
Solar	17.7 GW	19.10., 12:45 (+2:00)	0.48 TWh
Wind	17.7 GW	19.10., 21:15 (+2:00)	0.71 TWh
Conventional > 100 MW	59.4 GW	15.10., 19:00 (+2:00)	7.9 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 43

Actual production



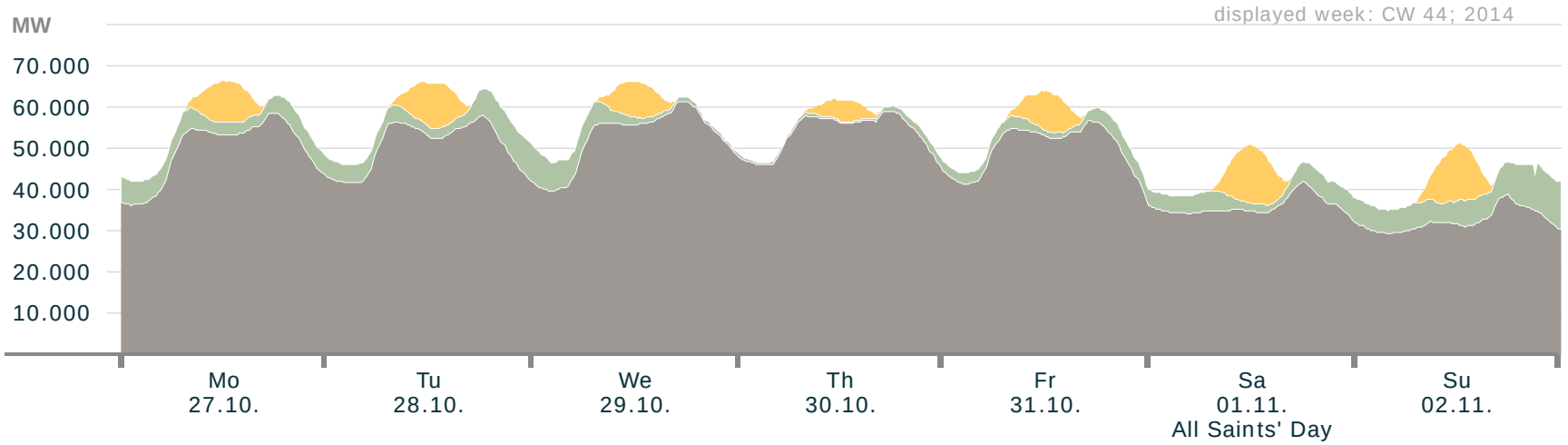
	max. power	date max. power	weekly energy
Solar	11.5 GW	24.10., 12:30 (+2:00)	0.30 TWh
Wind	21.5 GW	22.10., 03:30 (+2:00)	1.35 TWh
Conventional > 100 MW	59.7 GW	23.10., 18:00 (+2:00)	7.35 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 44

Actual production



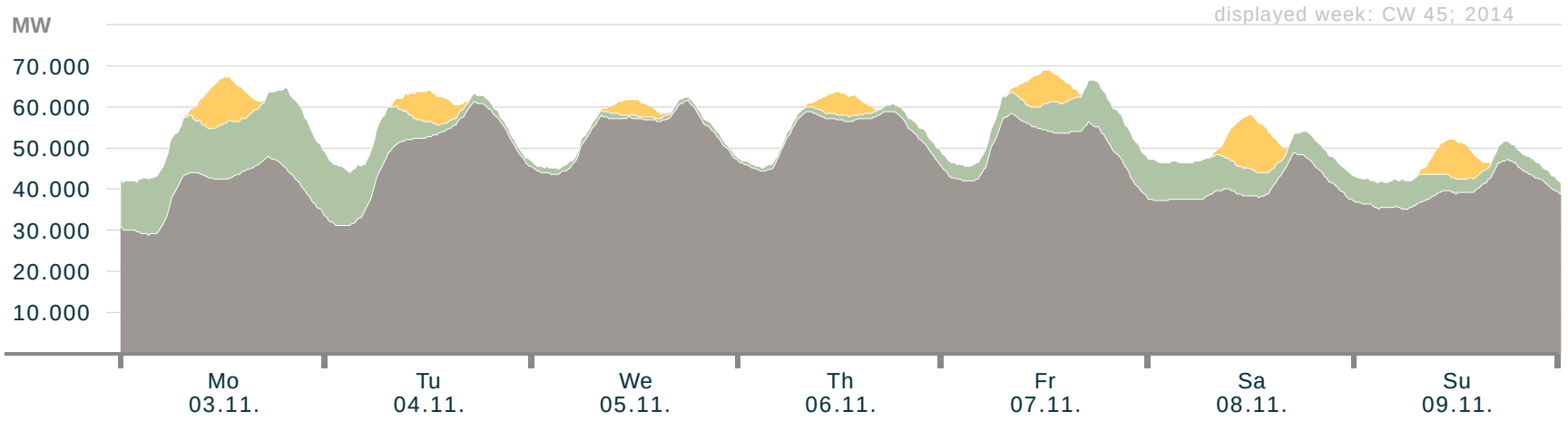
	max. power	date max. power	weekly energy
Solar	14.0 GW	01.11., 12:00 (+1:00)	0.40 TWh
Wind	11.5 GW	02.11., 21:30 (+1:00)	0.65 TWh
Conventional > 100 MW	61.3 GW	29.10., 17:00 (+1:00)	7.8 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 45

Actual production



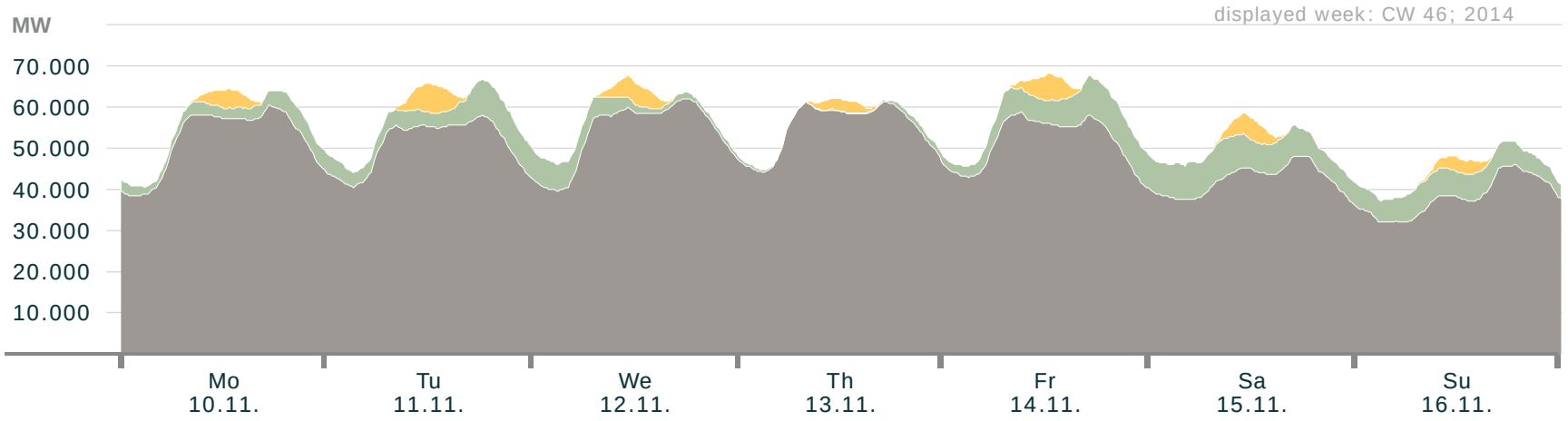
	max. power	date max. power	weekly energy
Solar	12.9 GW	08.11., 12:00 (+1:00)	0.30 TWh
Wind	19.8 GW	03.11., 19:00 (+1:00)	1.0 TWh
Conventional > 100 MW	61.4 GW	05.11., 18:00 (+1:00)	7.8 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 46

Actual production



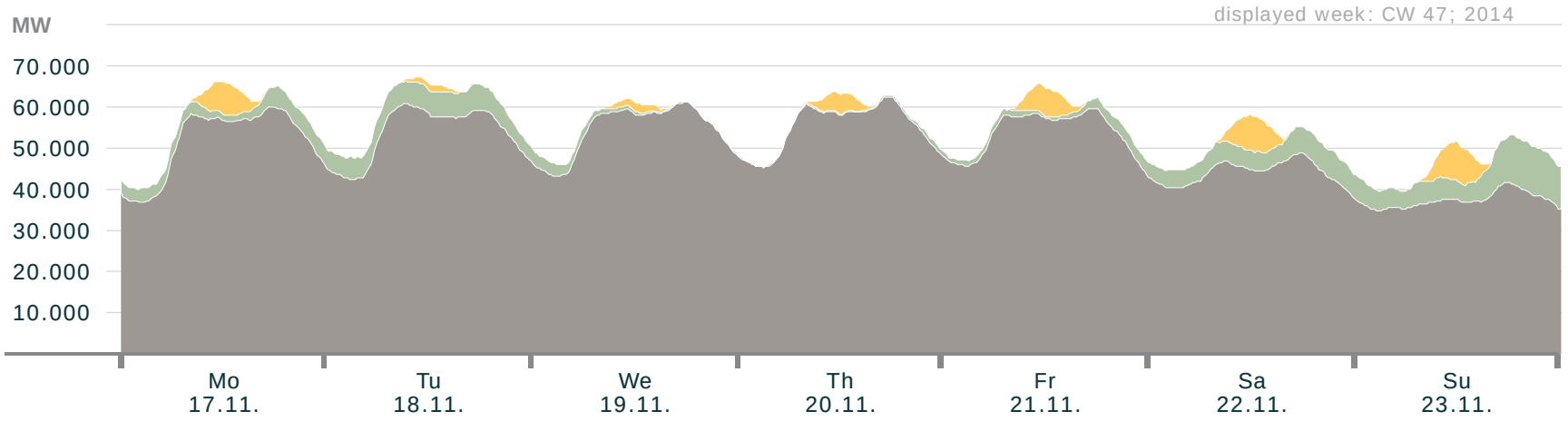
	max. power	date max. power	weekly energy
Solar	7.0 GW	11.11., 11:45 (+1:00)	0.17 TWh
Wind	10.0 GW	14.11., 19:30 (+1:00)	0.78 TWh
Conventional > 100 MW	62.1 GW	12.11., 18:00 (+1:00)	8.3 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 47

Actual production



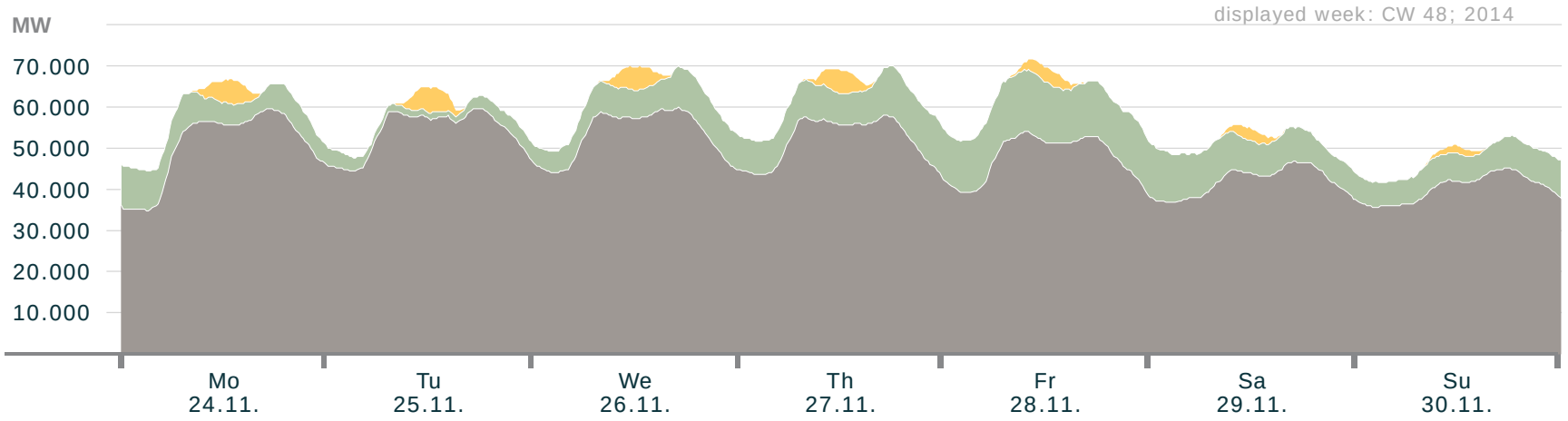
	max. power	date max. power	weekly energy
Solar	9.1 GW	23.11., 12:15 (+1:00)	0.19 TWh
Wind	12.0 GW	23.11., 19:30 (+1:00)	0.58 TWh
Conventional > 100 MW	62.3 GW	20.11., 17:00 (+1:00)	8.4 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 48

Actual production



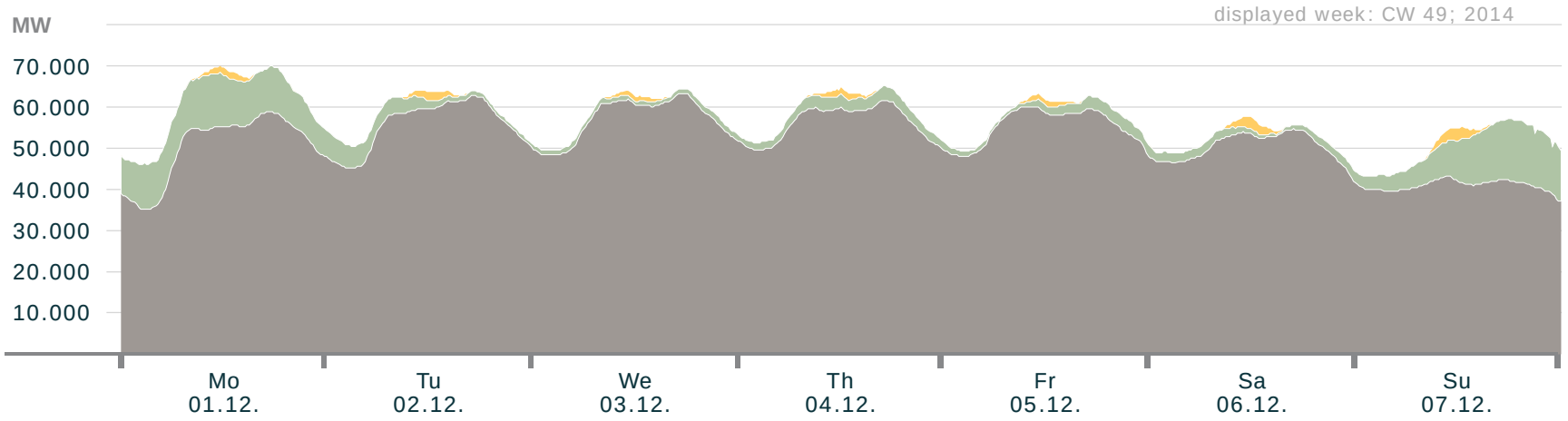
	max. power	date max. power	weekly energy
Solar	6.2 GW	25.11., 12:00 (+1:00)	0.15 TWh
Wind	15.3 GW	28.11., 09:15 (+1:00)	1.36 TWh
Conventional > 100 MW	59.8 GW	26.11., 17:00 (+1:00)	8.15 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 49

Actual production



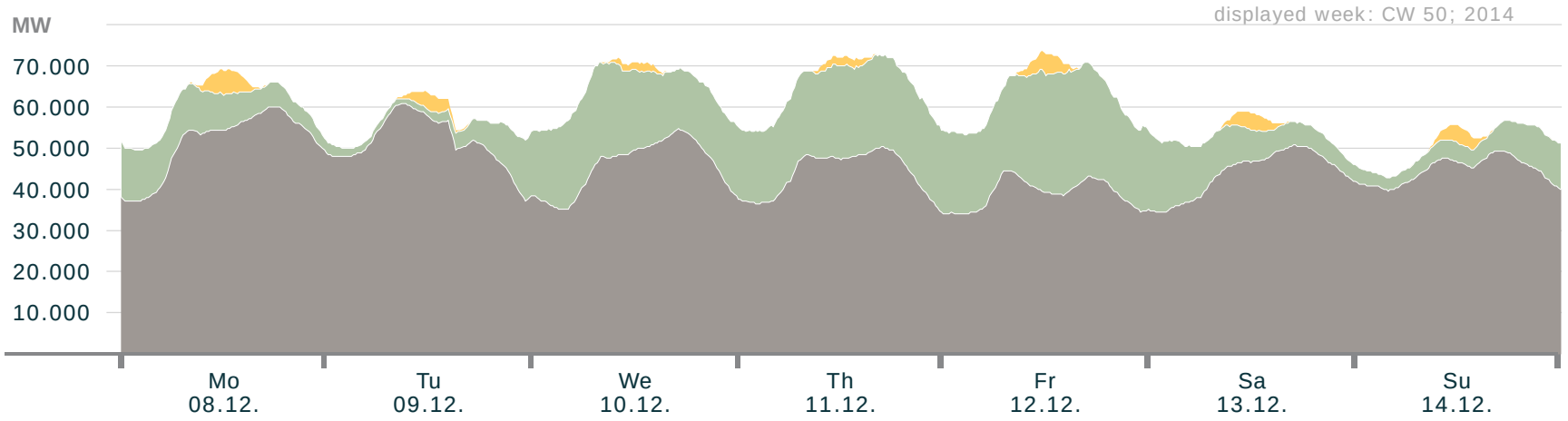
	max. power	date max. power	weekly energy
Solar	3.1 GW	07.12., 11:45 (+1:00)	0.06 TWh
Wind	15.4 GW	07.12., 19:45 (+1:00)	0.73 TWh
Conventional > 100 MW	63.3 GW	03.12., 17:00 (+1:00)	8.78 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 50

Actual production



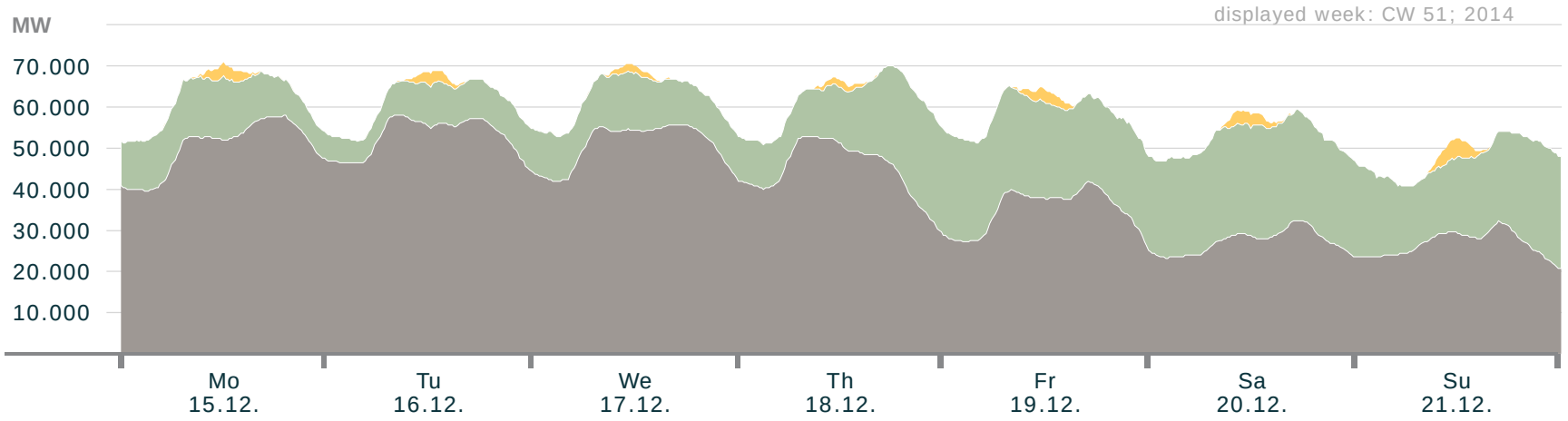
	max. power	date max. power	weekly energy
Solar	5.8 GW	08.12., 12:15 (+1:00)	0.12 TWh
Wind	29.7 GW	12.12., 13:30 (+1:00)	2.18 TWh
Conventional > 100 MW	60.7 GW	09.12., 09:00 (+1:00)	7.67 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 51

Actual production



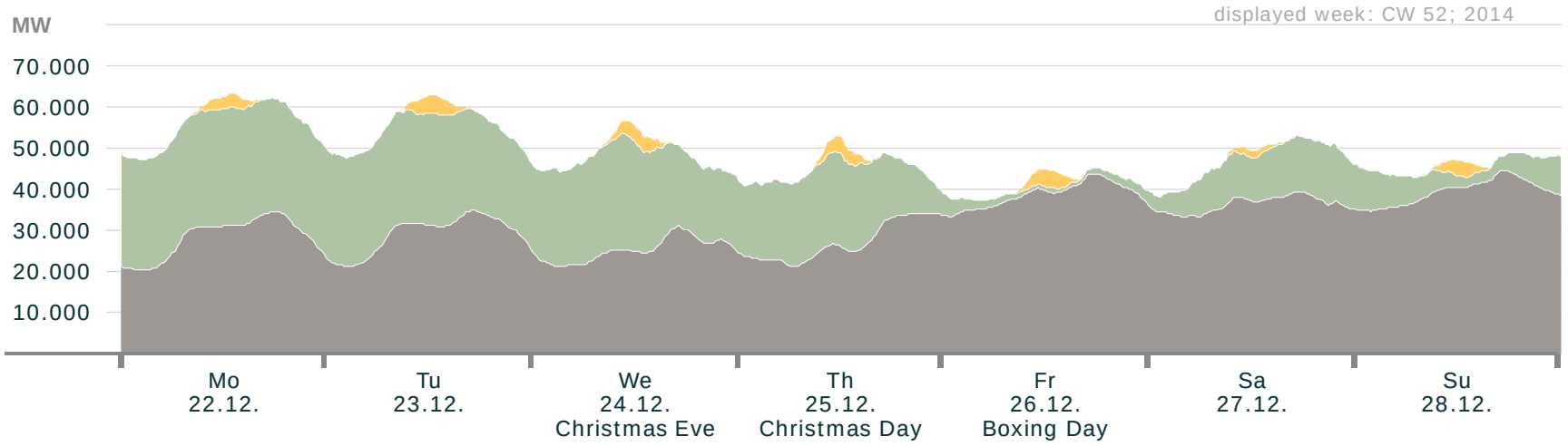
	max. power	date max. power	weekly energy
Solar	4.6 GW	21.12., 12:15 (+1:00)	0.09 TWh
Wind	27.7 GW	20.12., 13:00 (+1:00)	2.82 TWh
Conventional > 100 MW	58.2 GW	16.12., 08:00 (+1:00)	6.92 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 52

Actual production



	max. power	date max. power	weekly energy
Solar	4.6 GW	23.12., 12:15 (+1:00)	0.11 TWh
Wind	28.9 GW	22.12., 12:45 (+1:00)	2.68 TWh
Conventional > 100 MW	44.3 GW	28.12., 18:00 (+1:00)	5.36 TWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

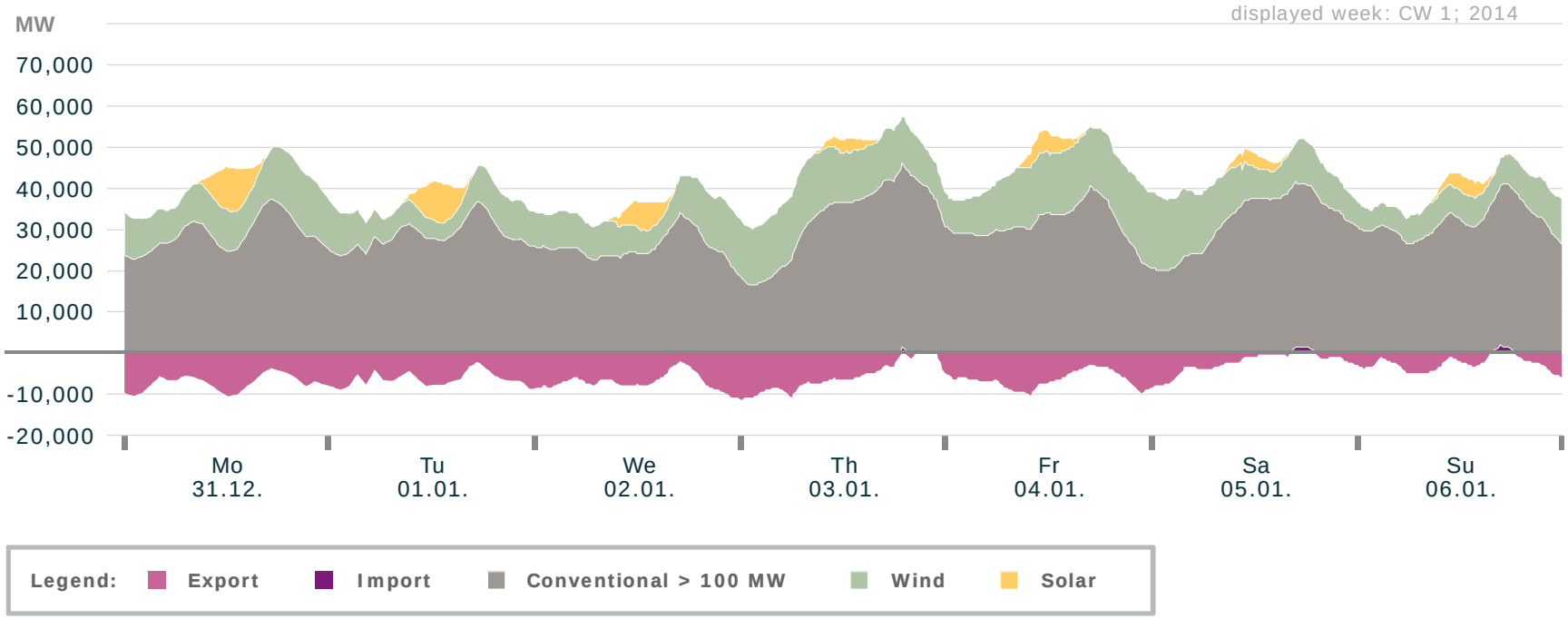
Fraunhofer ISE

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
- Weekly power curves
  - Weekly power curves for conventional, wind and solar
  - Weekly power curves with export and import
  - Detailed weekly power curves
- Exemplary daily power curves

Electricity Production in Germany: Calendar Week 1

Actual production

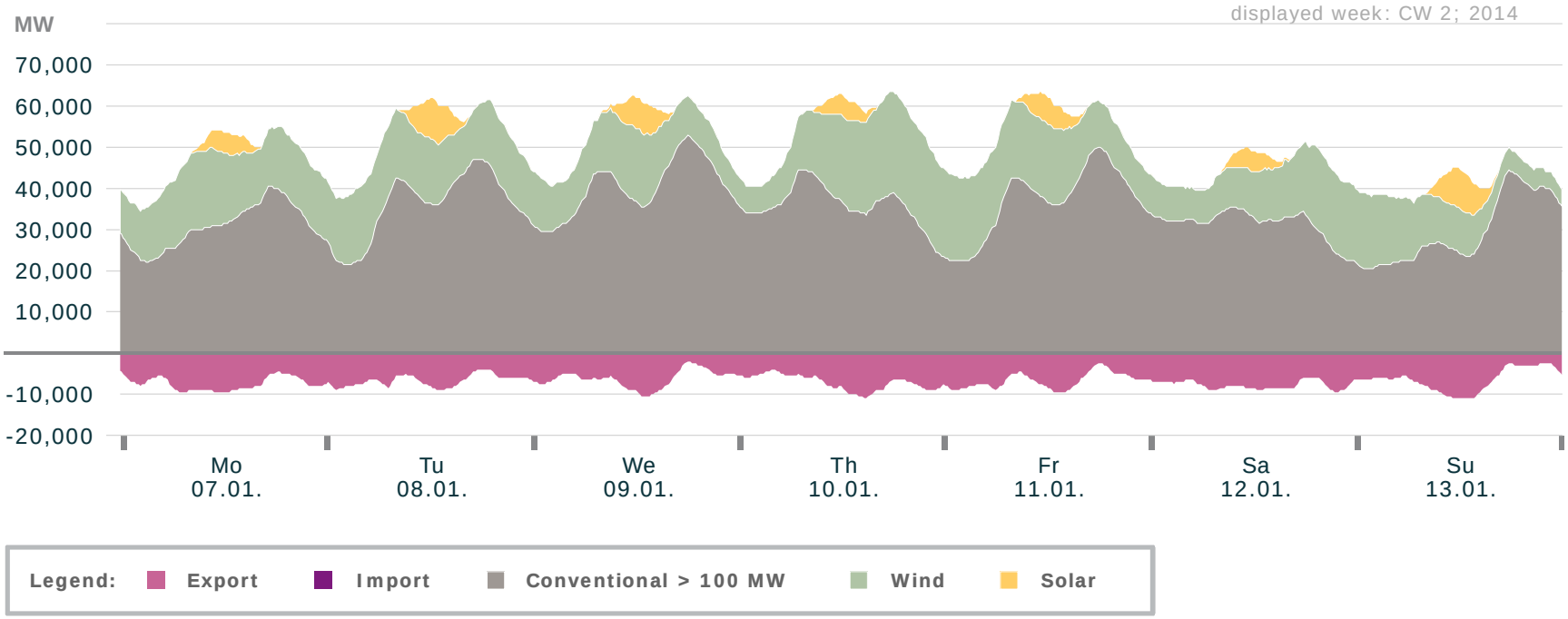


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 2

Actual production

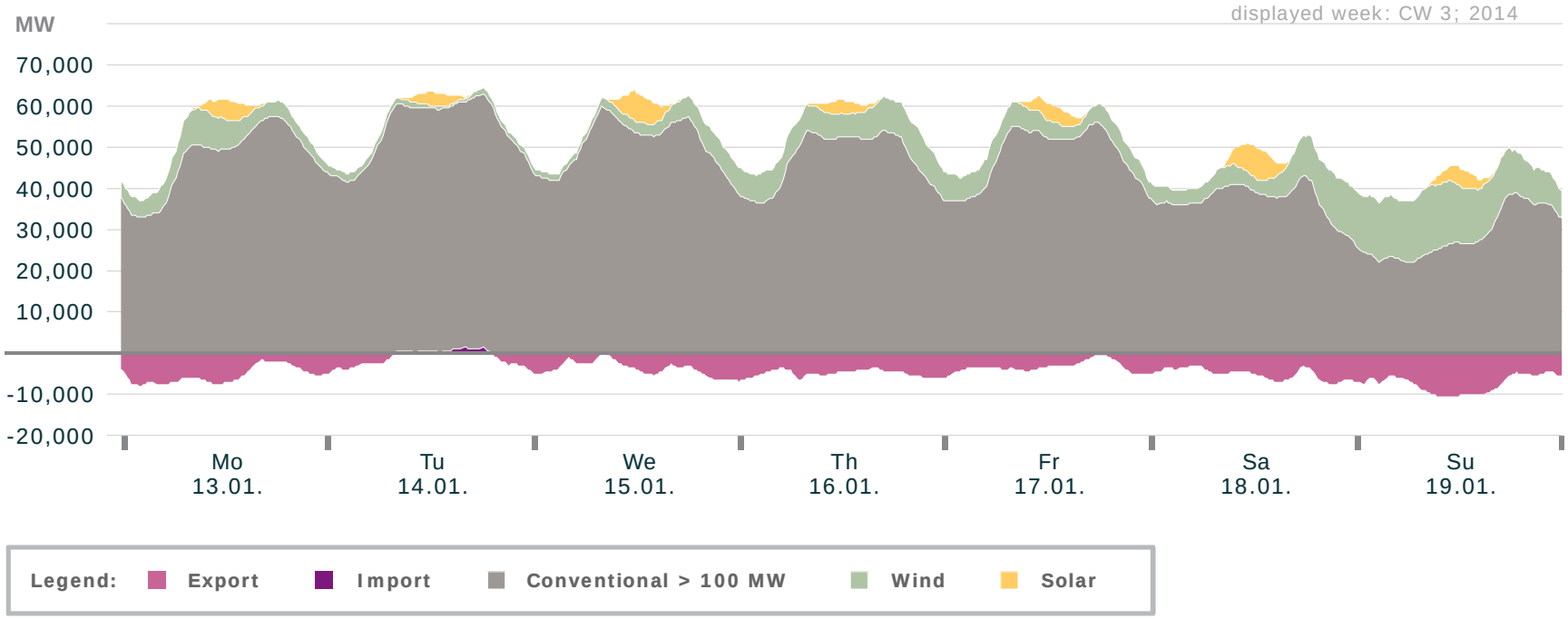


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 3

Actual production

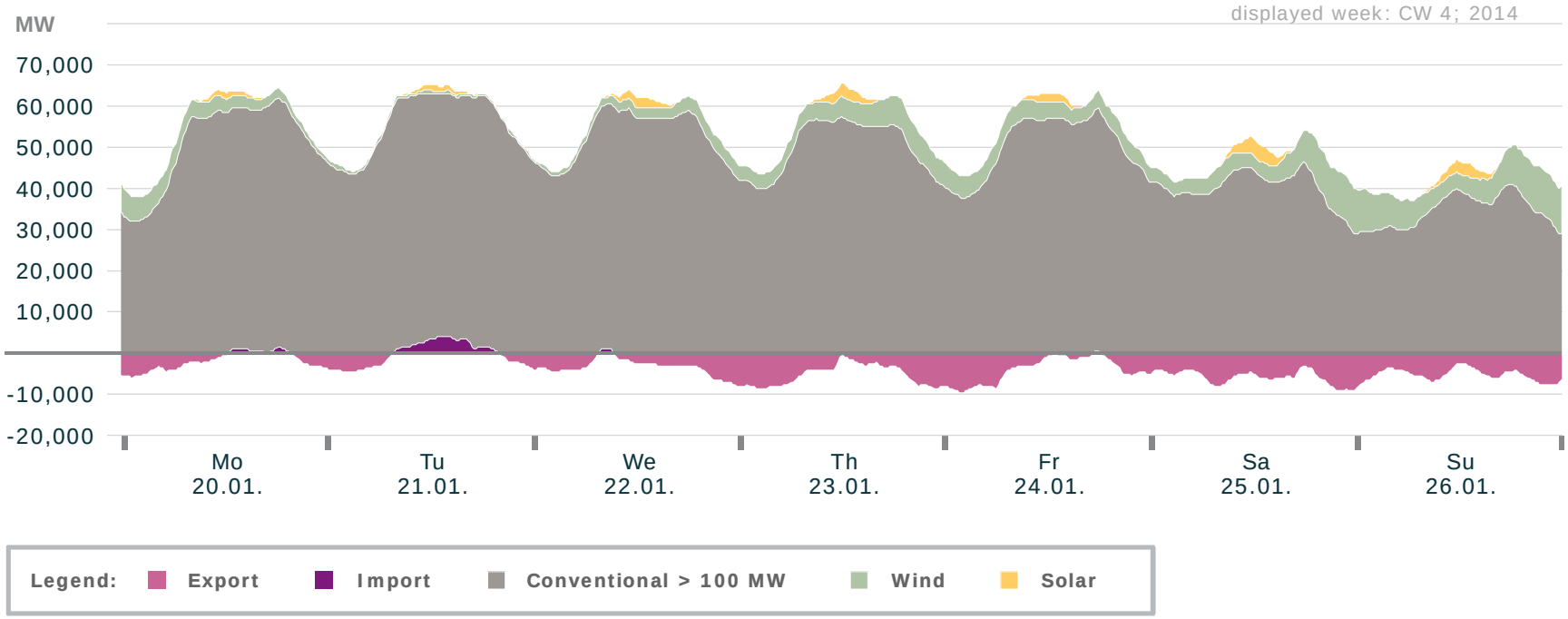


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 4

Actual production

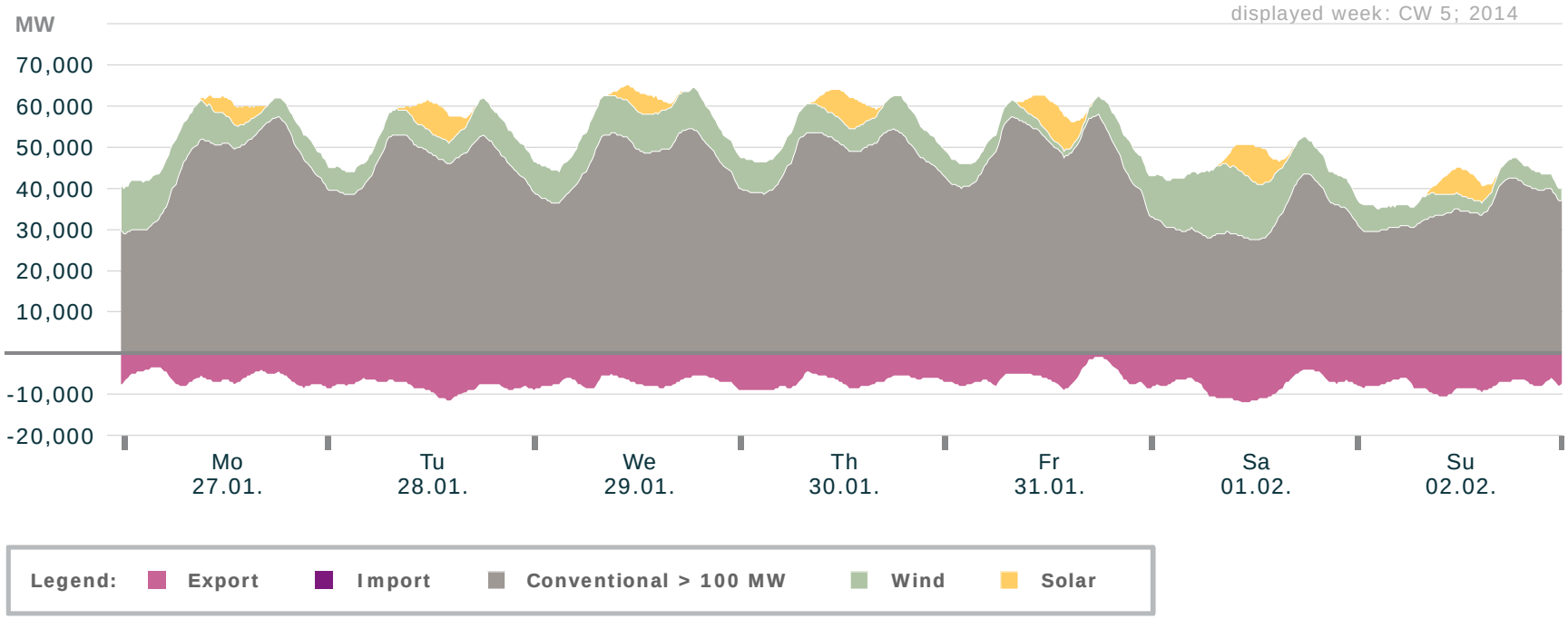


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 5

Actual production

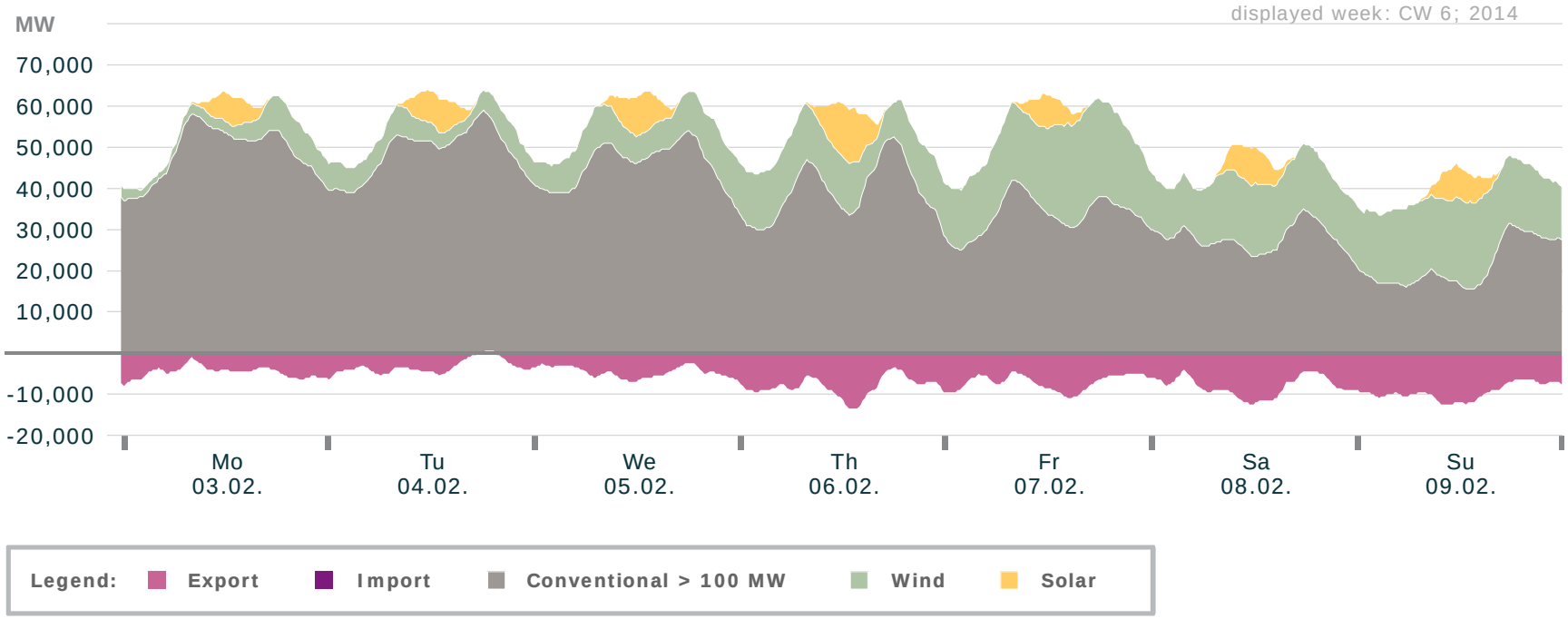


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 6

Actual production

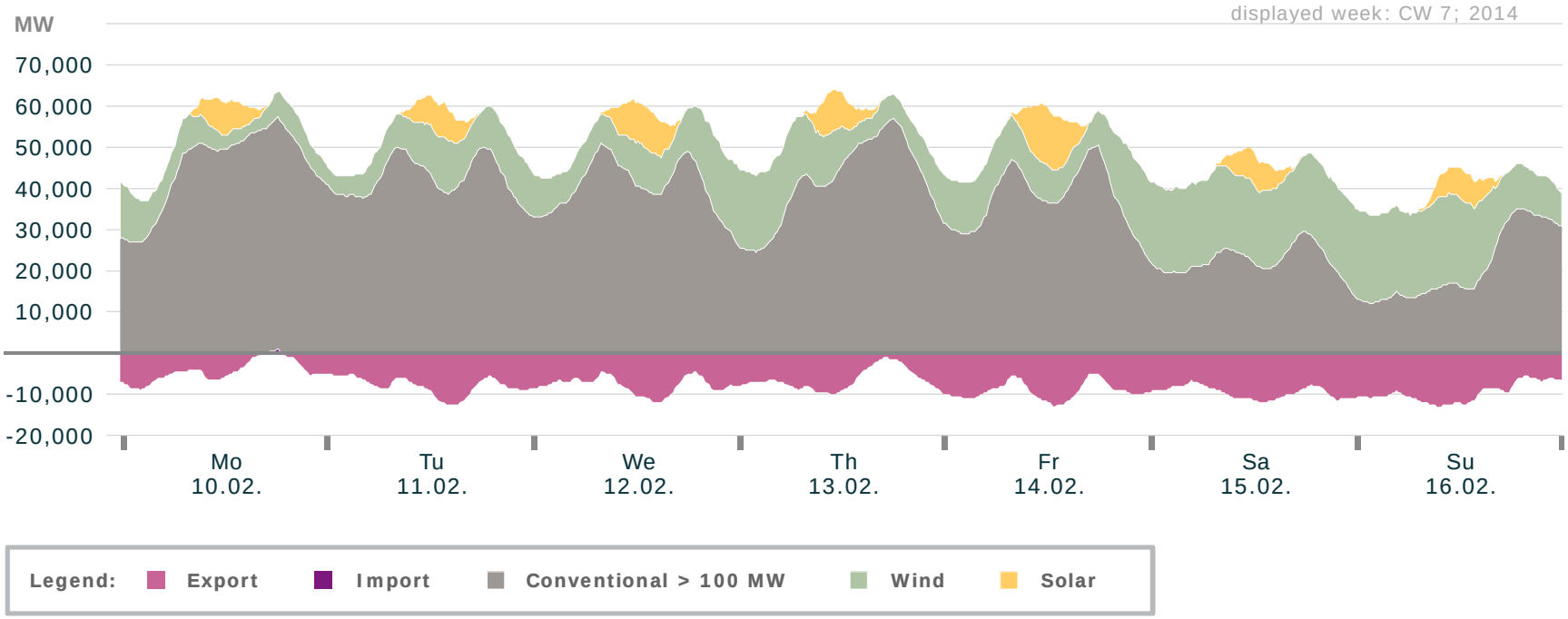


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 7

Actual production

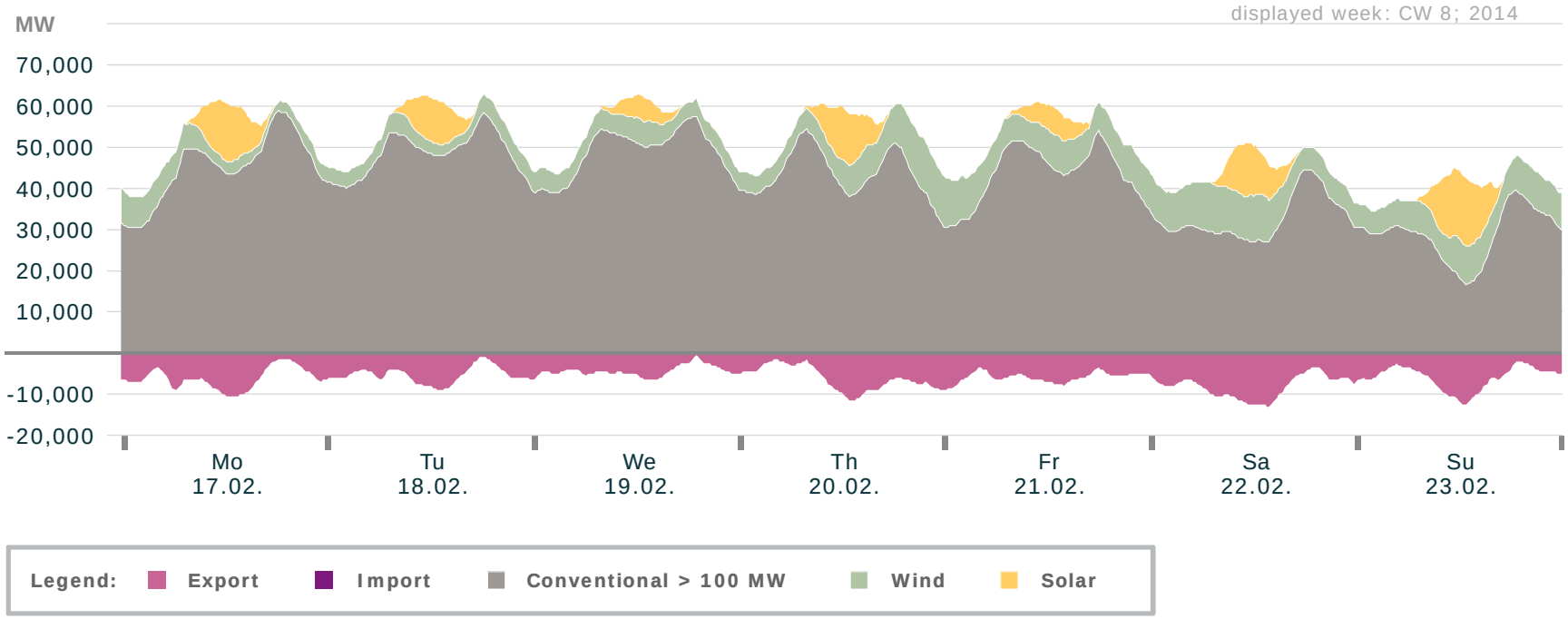


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 8

Actual production

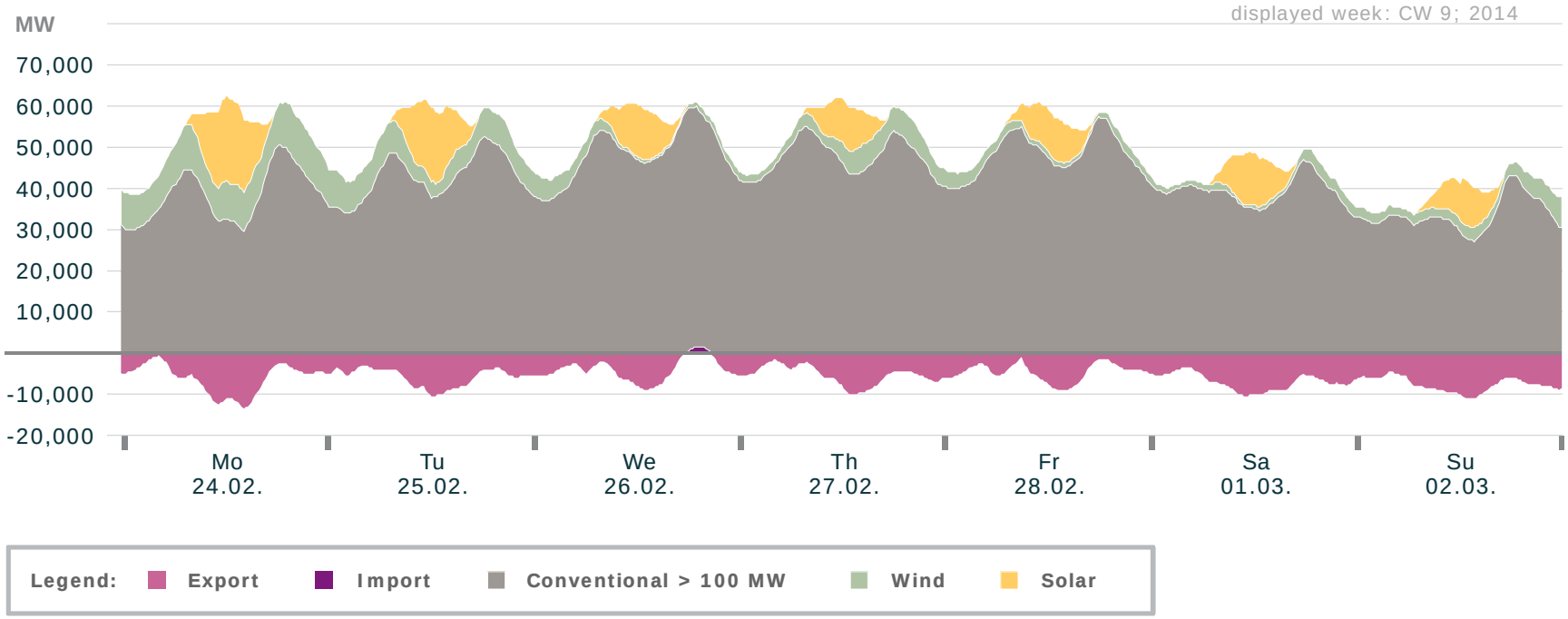


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 9

Actual production

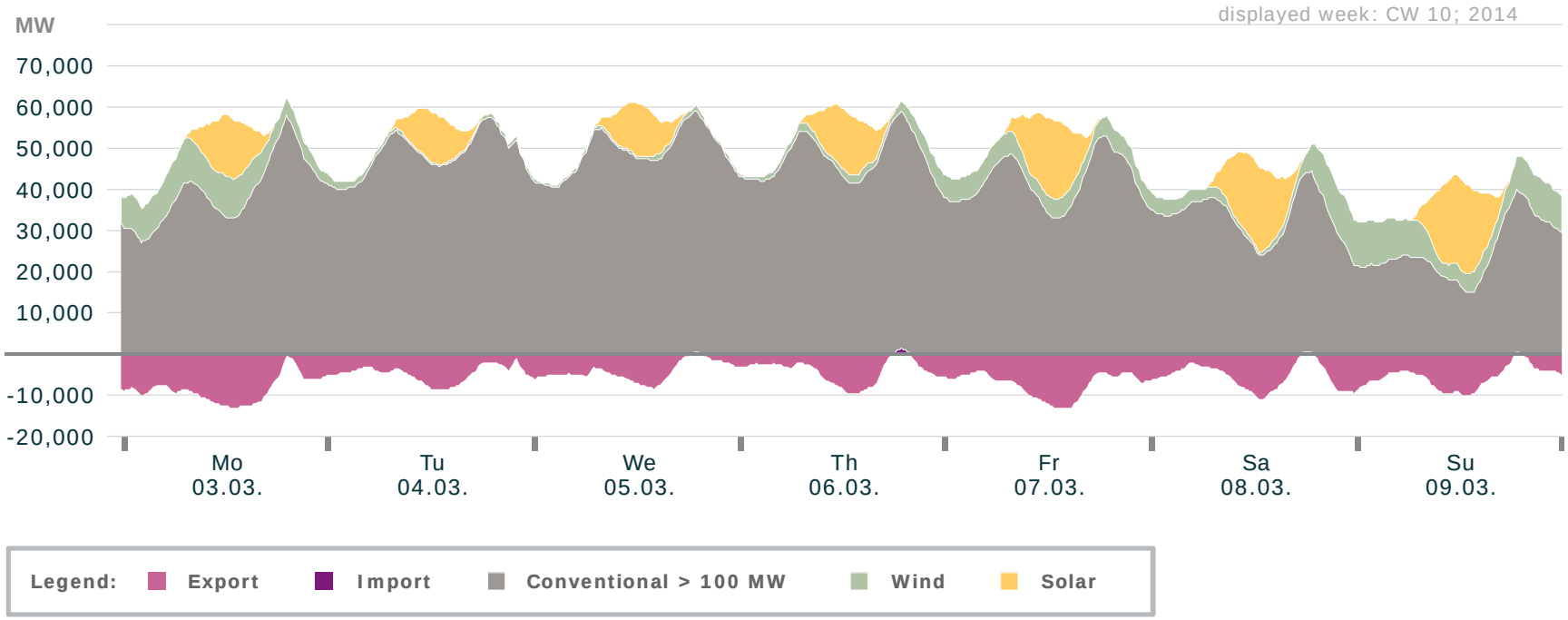


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 10

Actual production

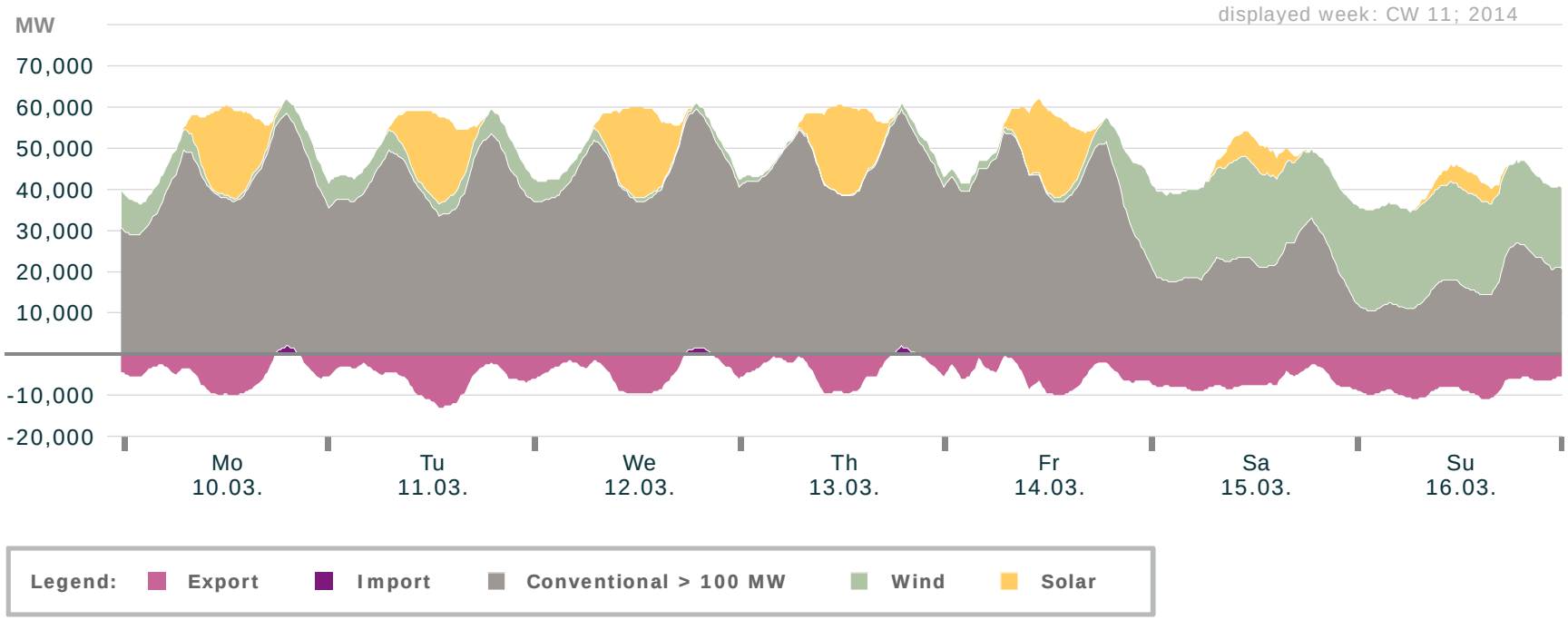


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 11

Actual production

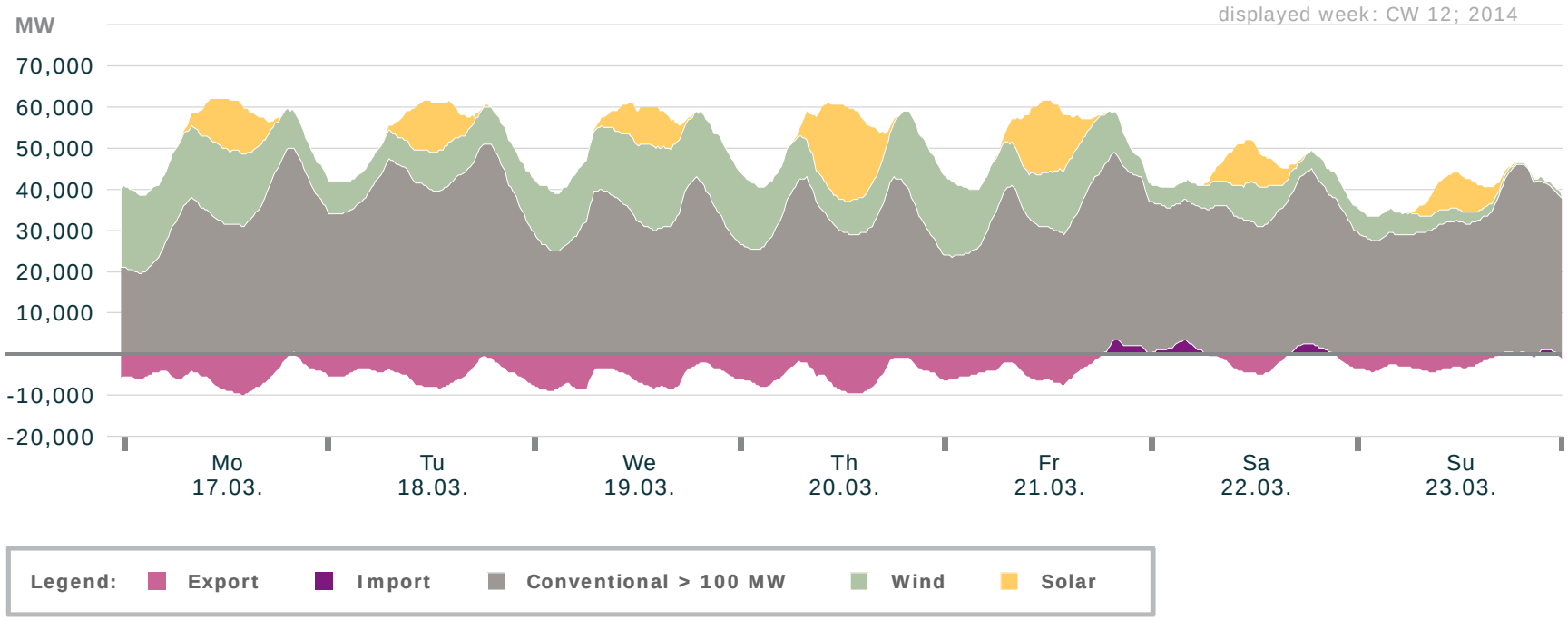


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 12

Actual production

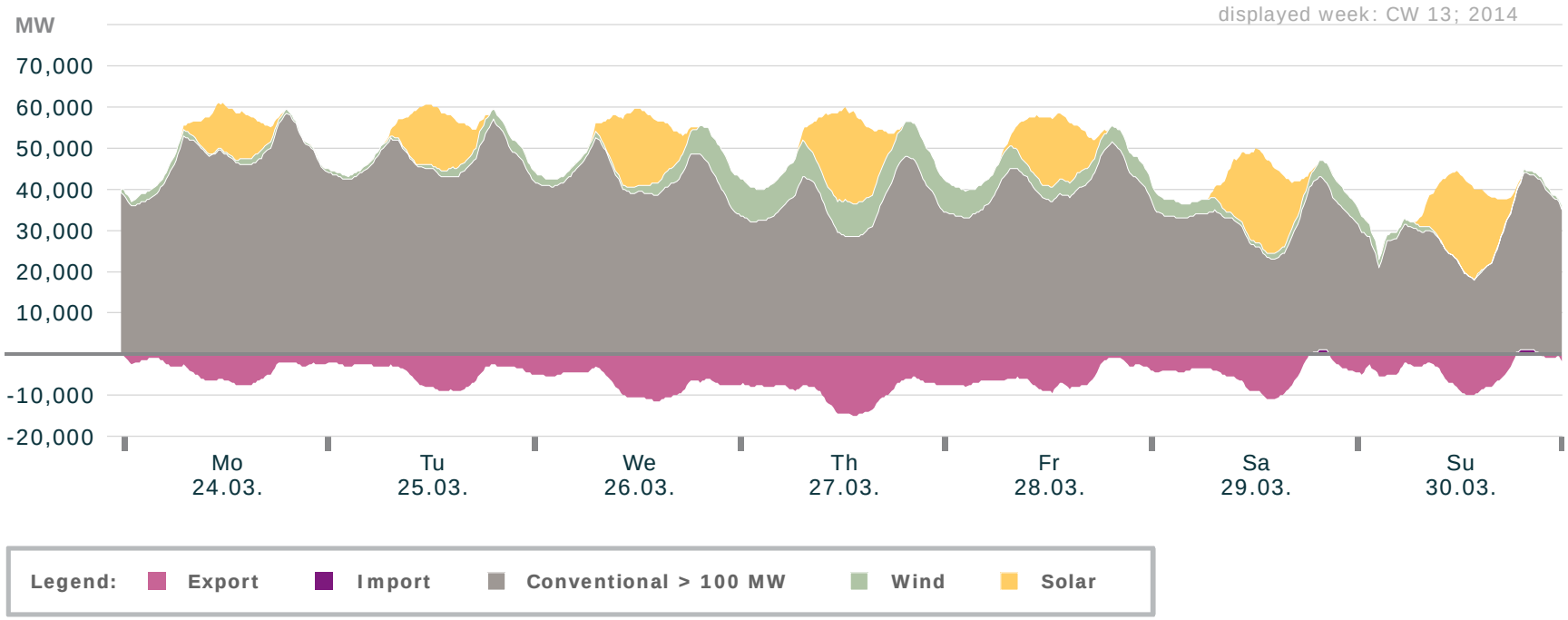


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 13

Actual production

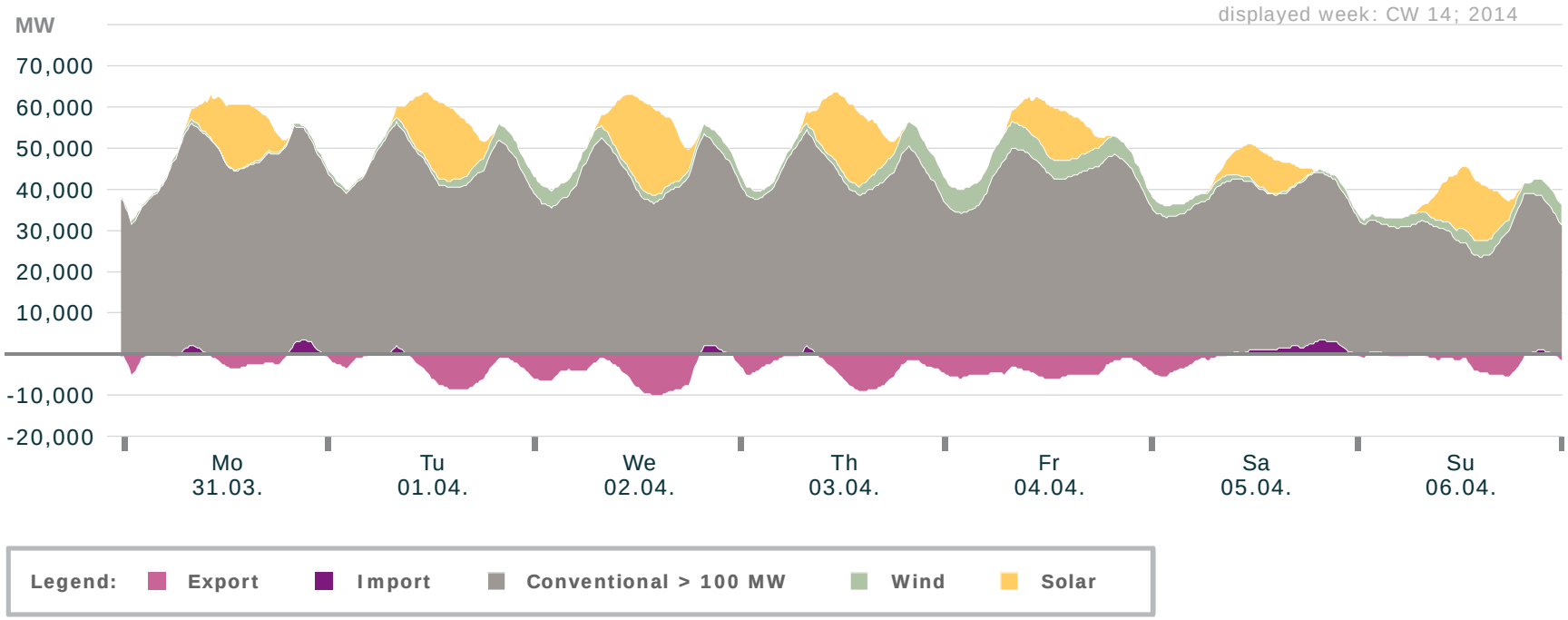


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 14

Actual production

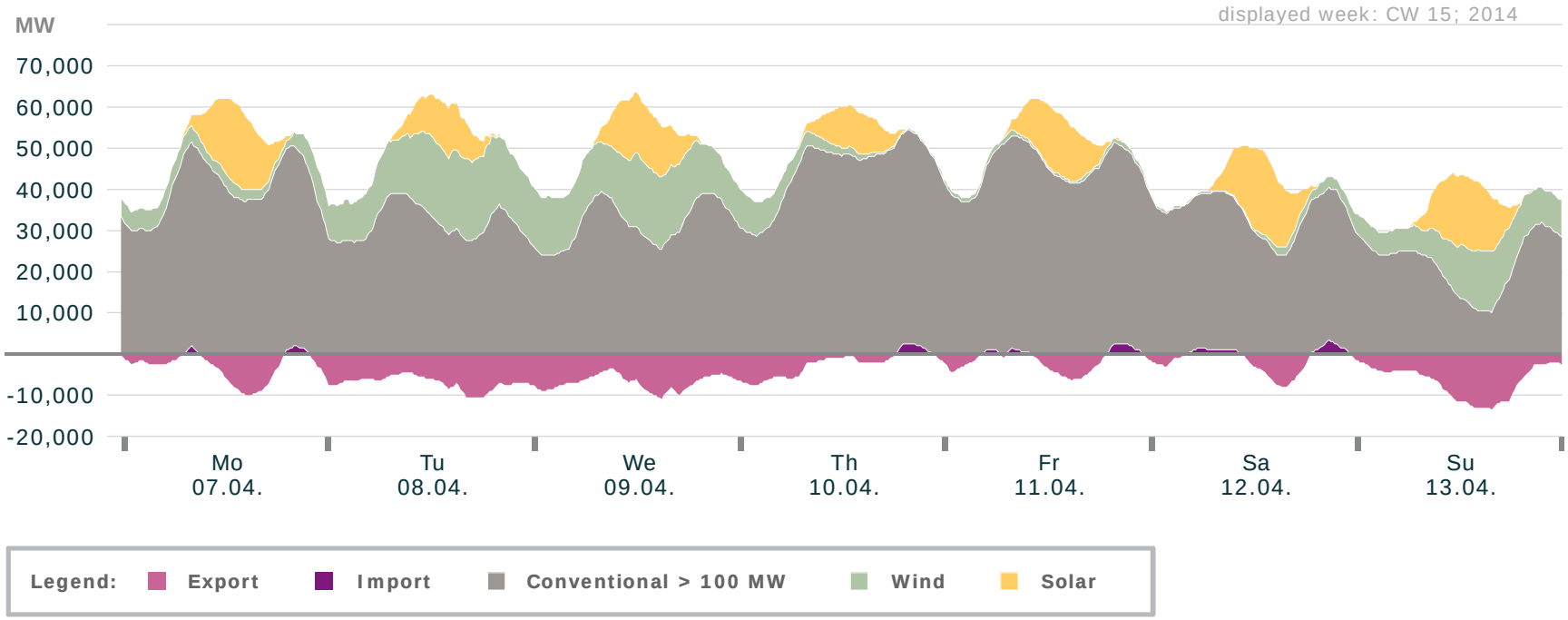


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 15

Actual production

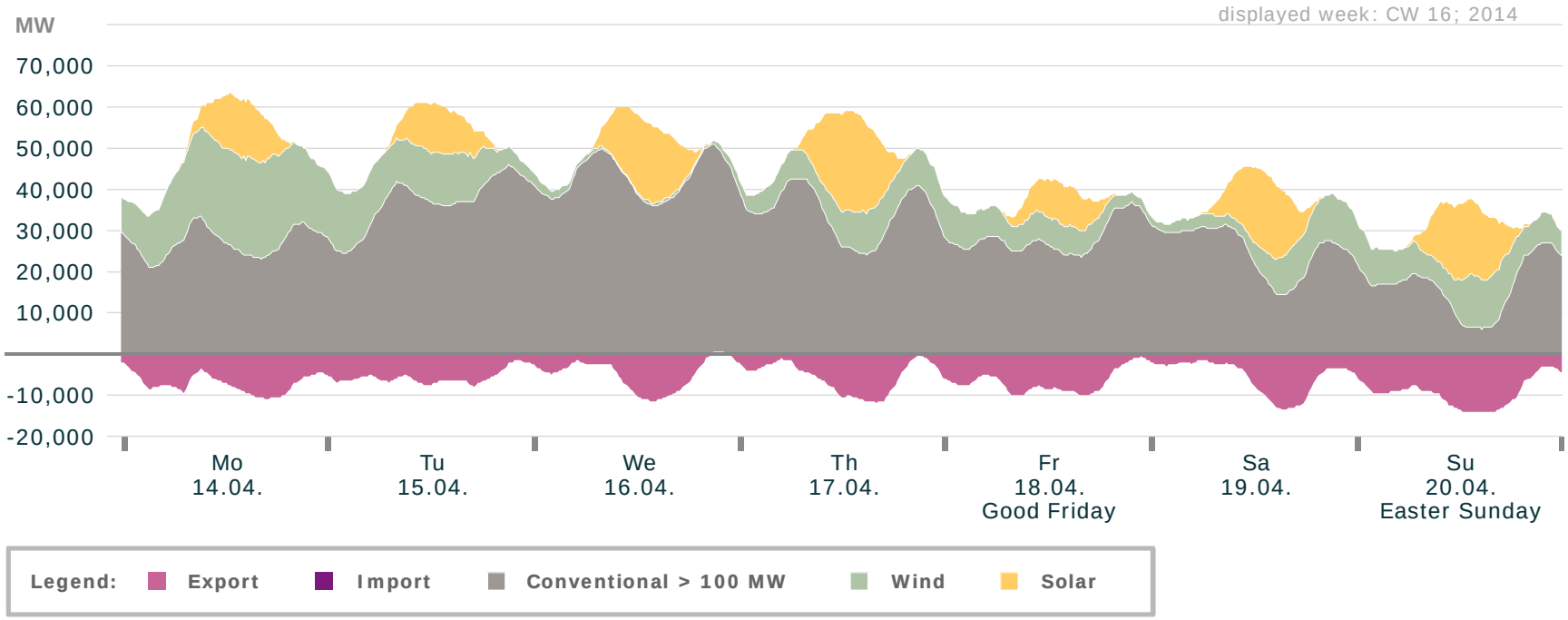


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 16

Actual production

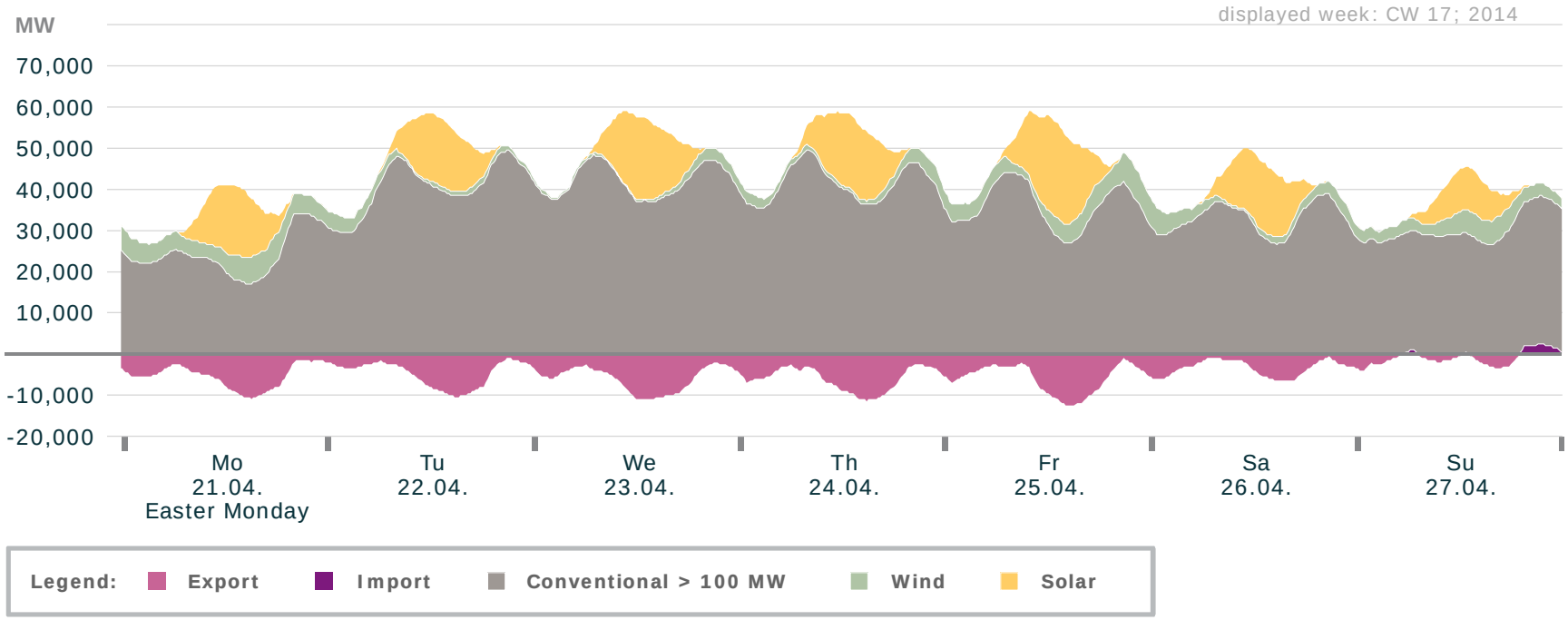


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 17

Actual production

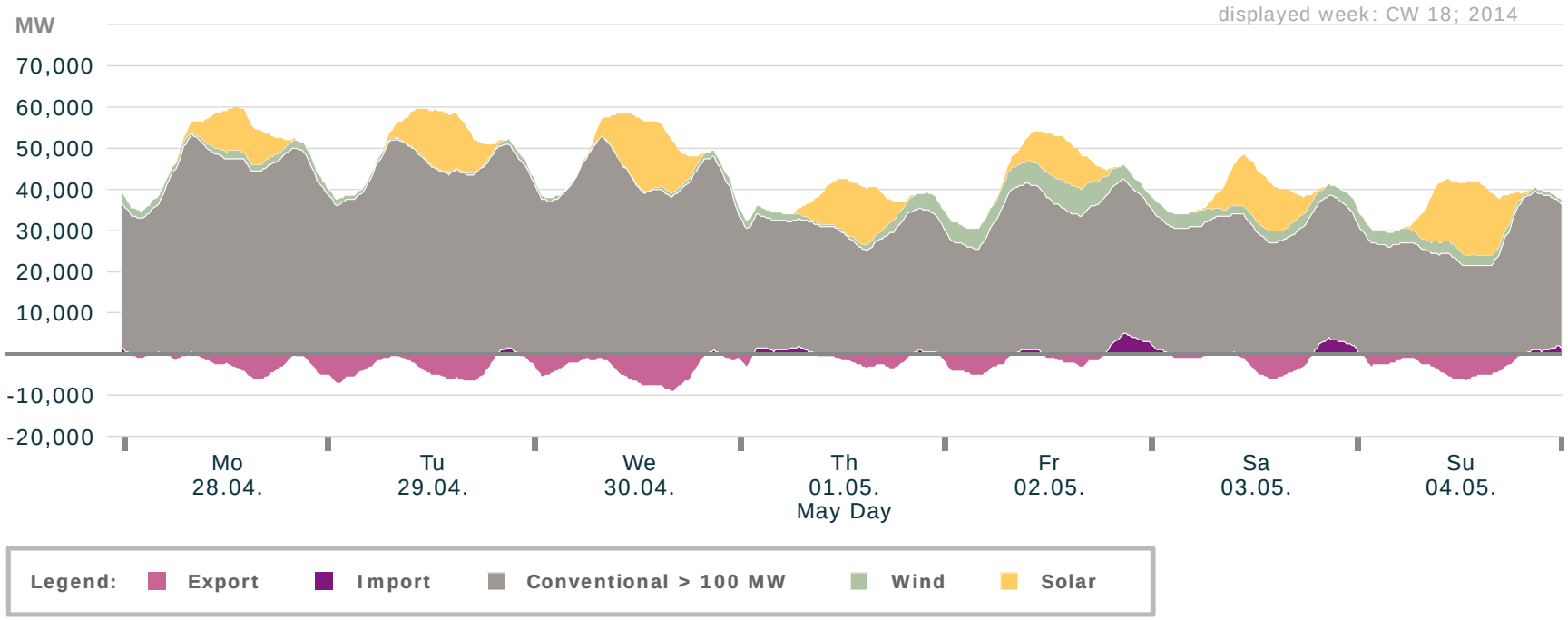


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 18

Actual production

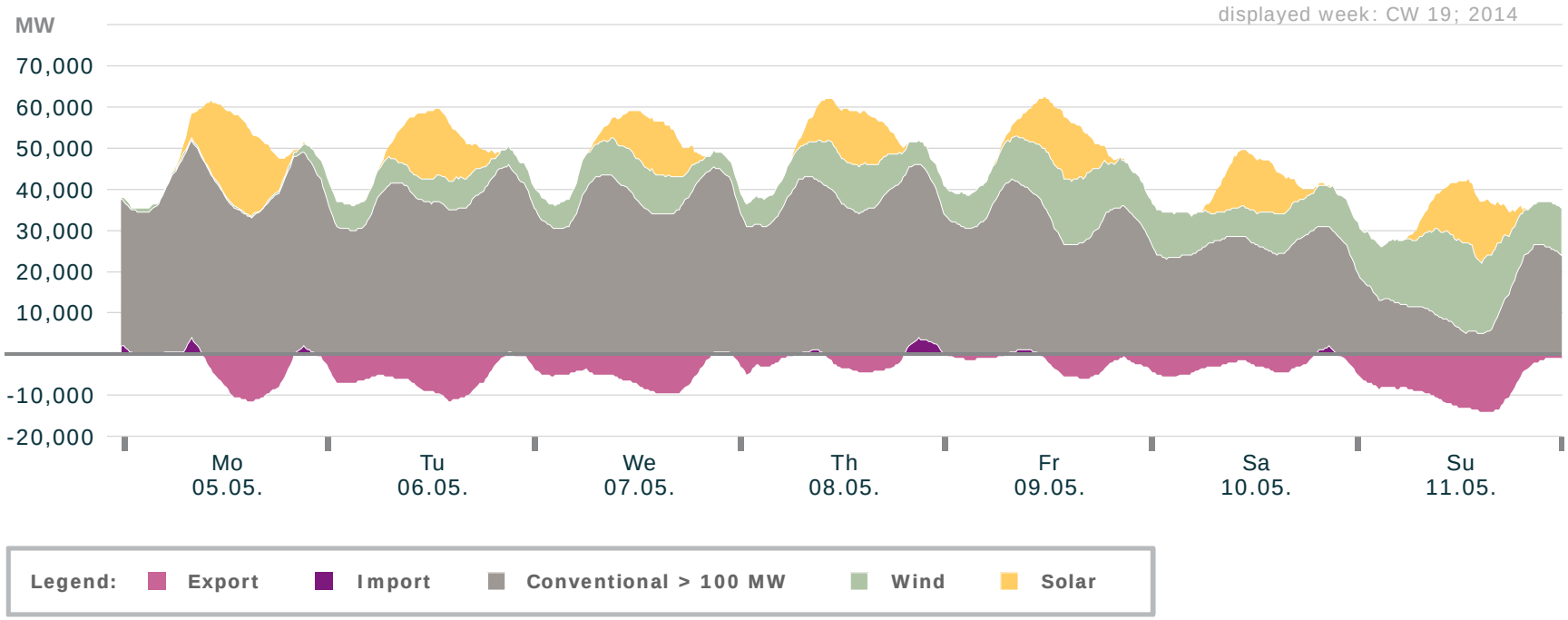


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 19

Actual production

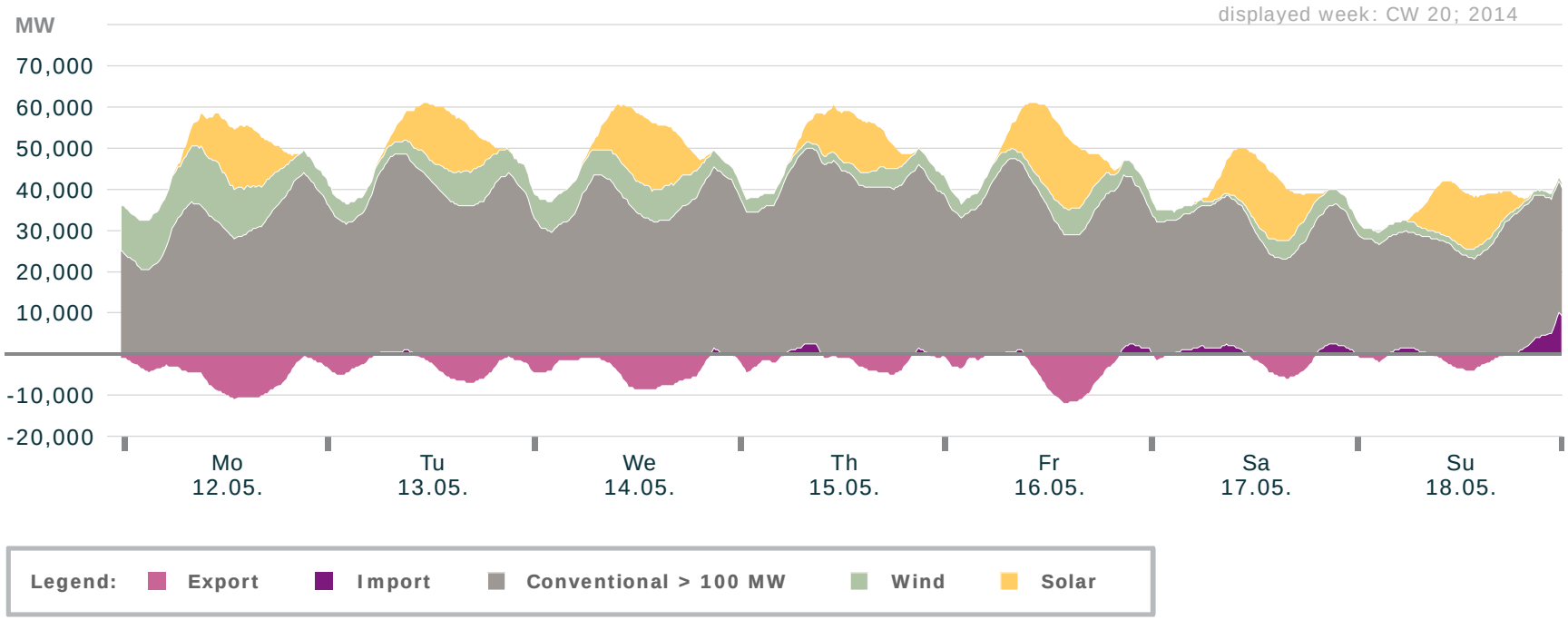


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 20

Actual production

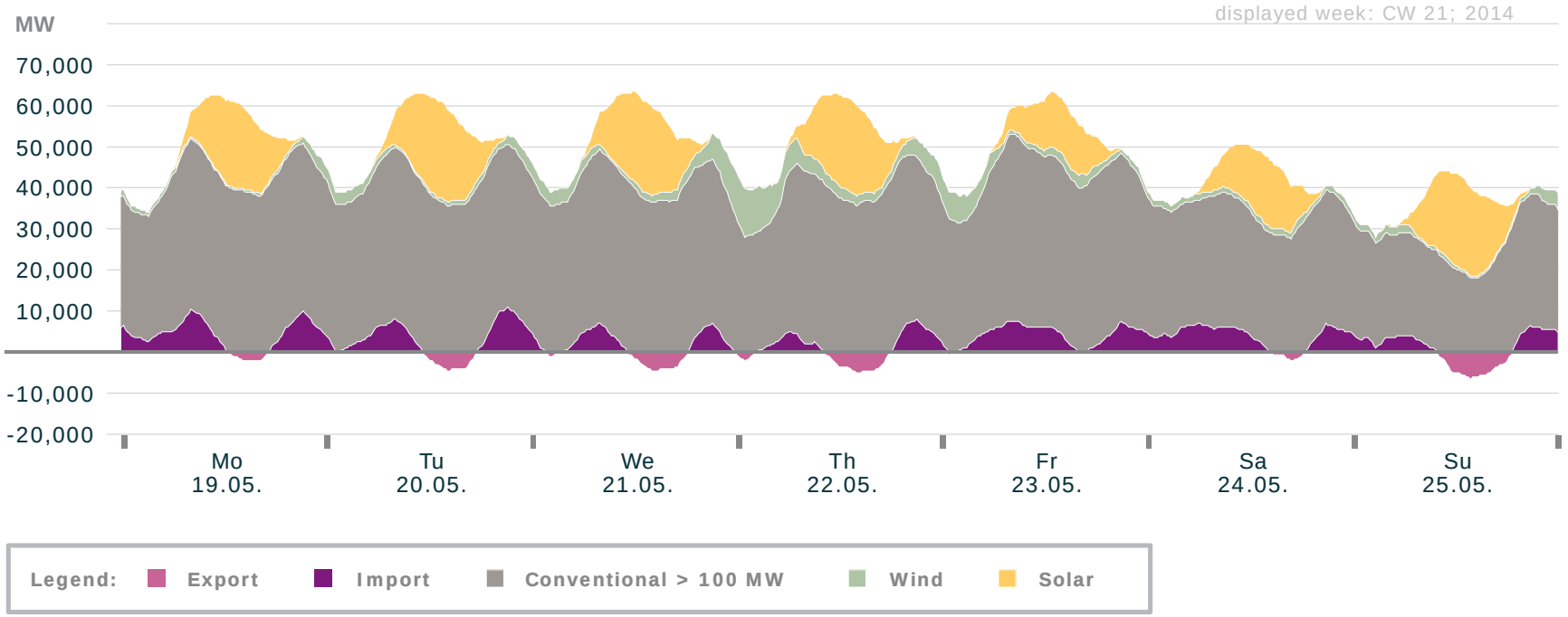


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 21

Actual production

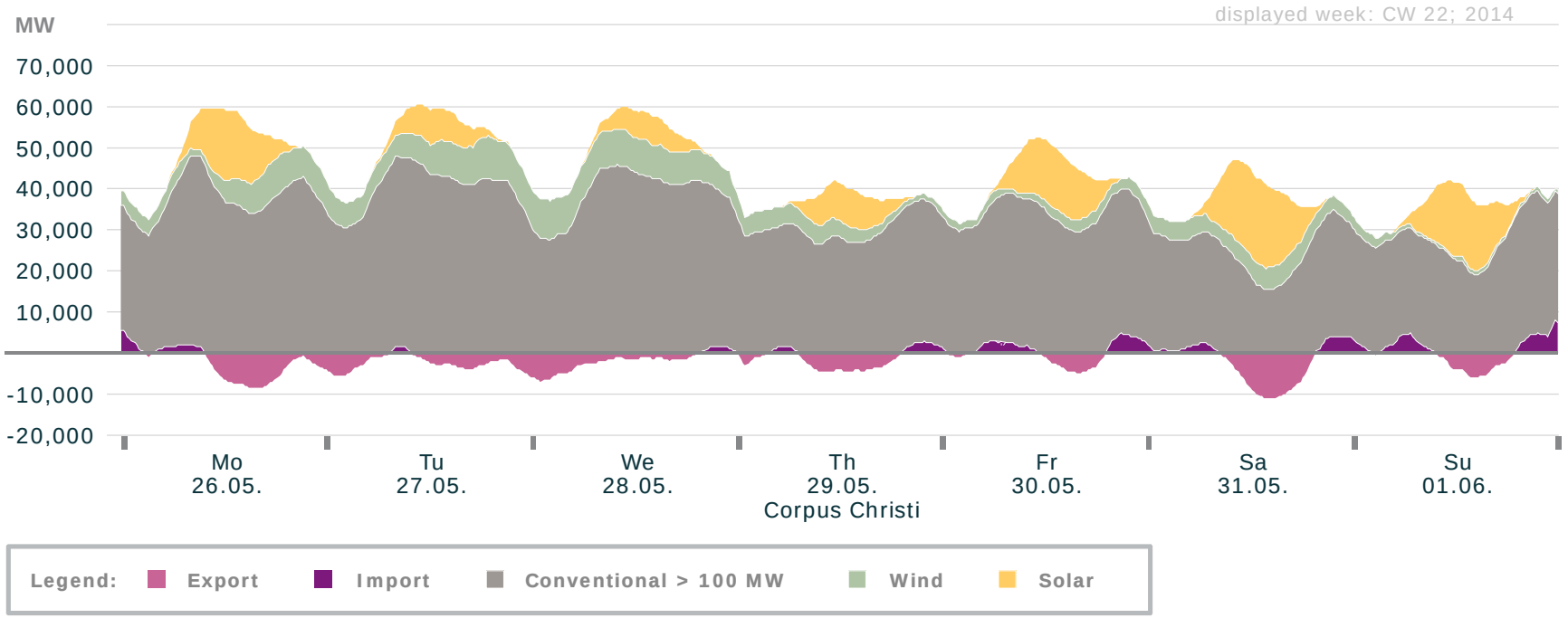


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 22

Actual production

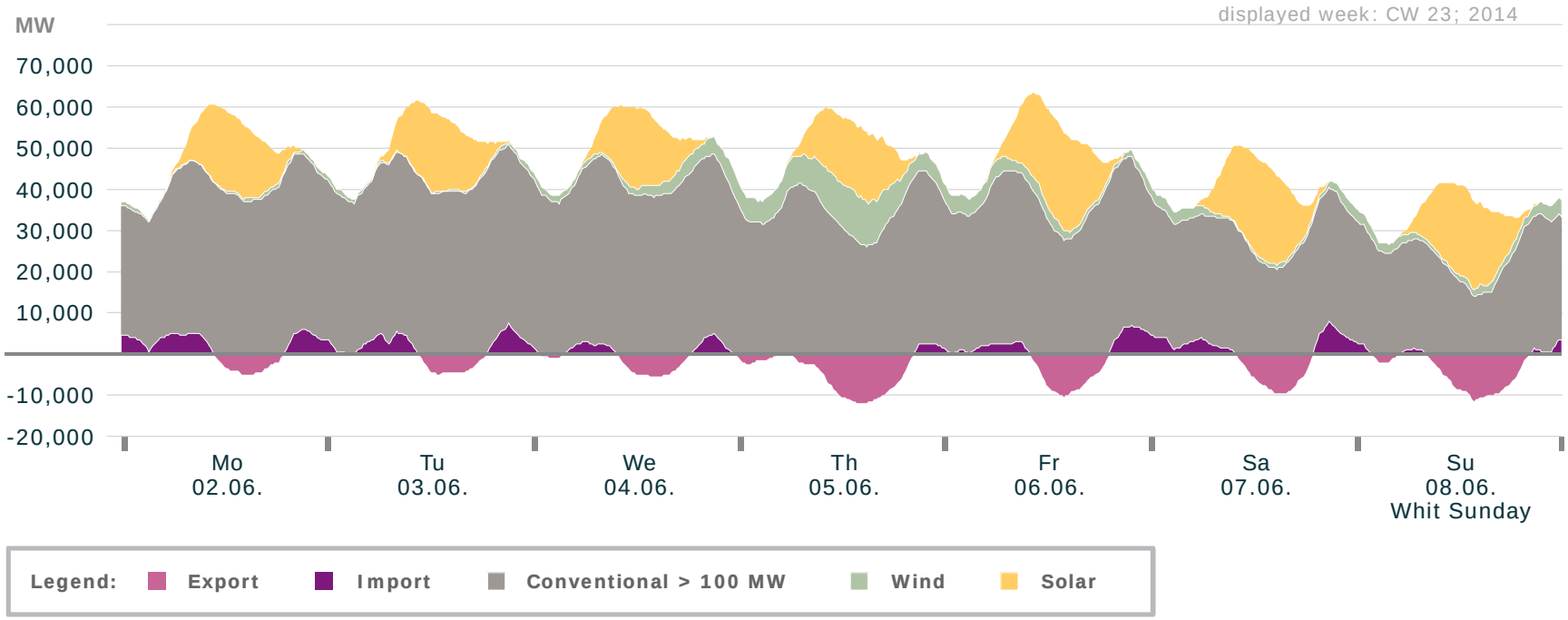


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 23

Actual production

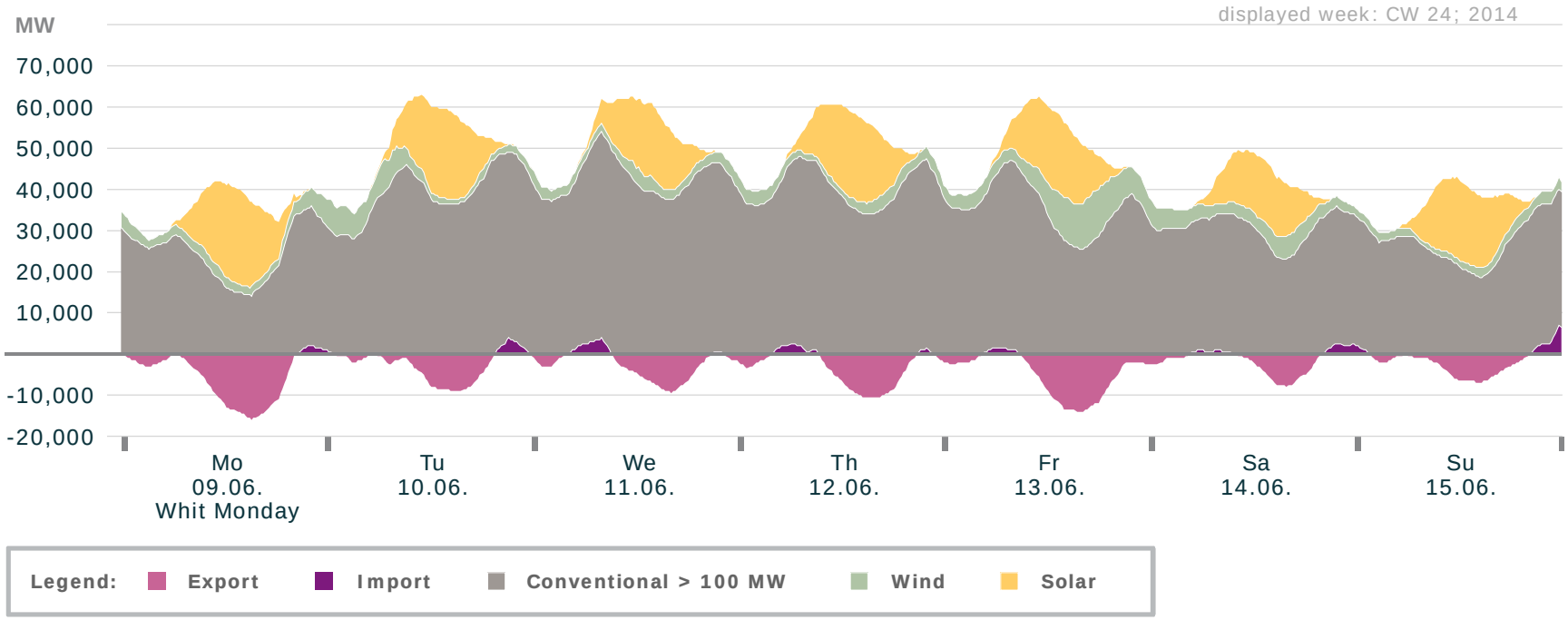


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 24

Actual production

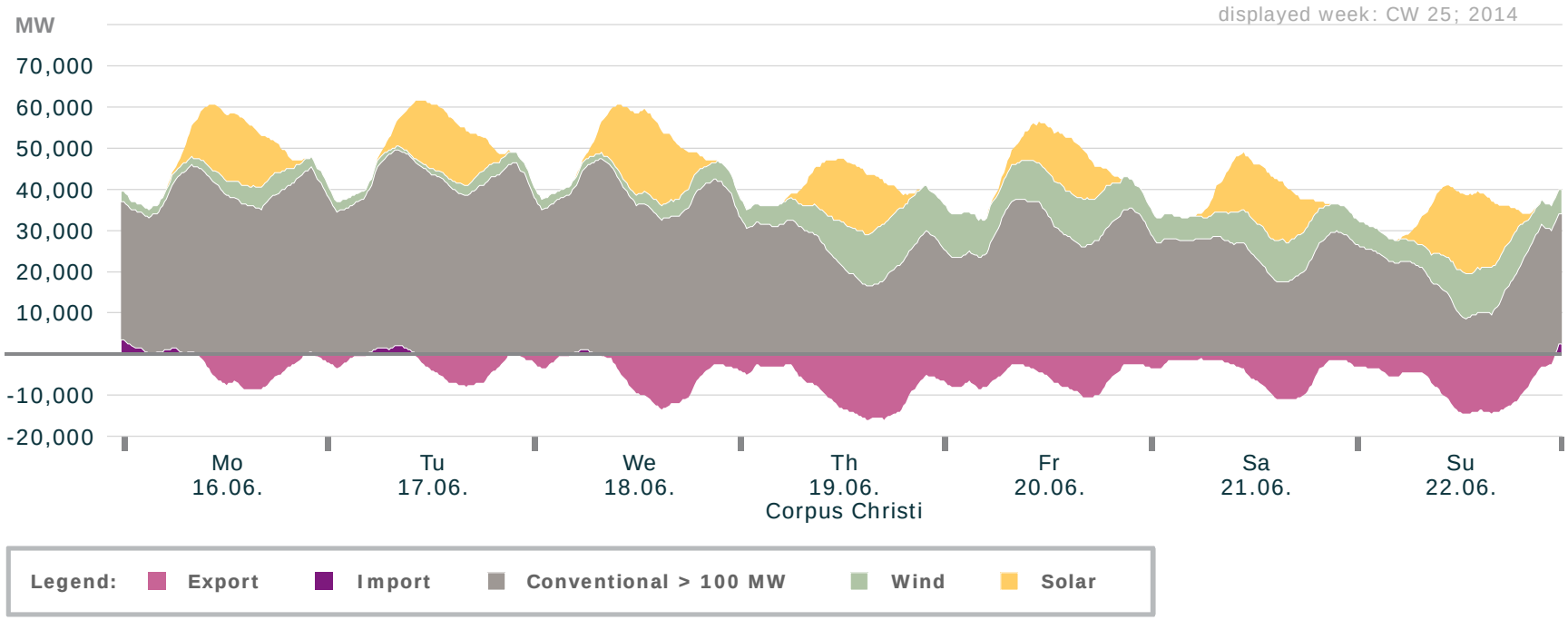


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 25

Actual production

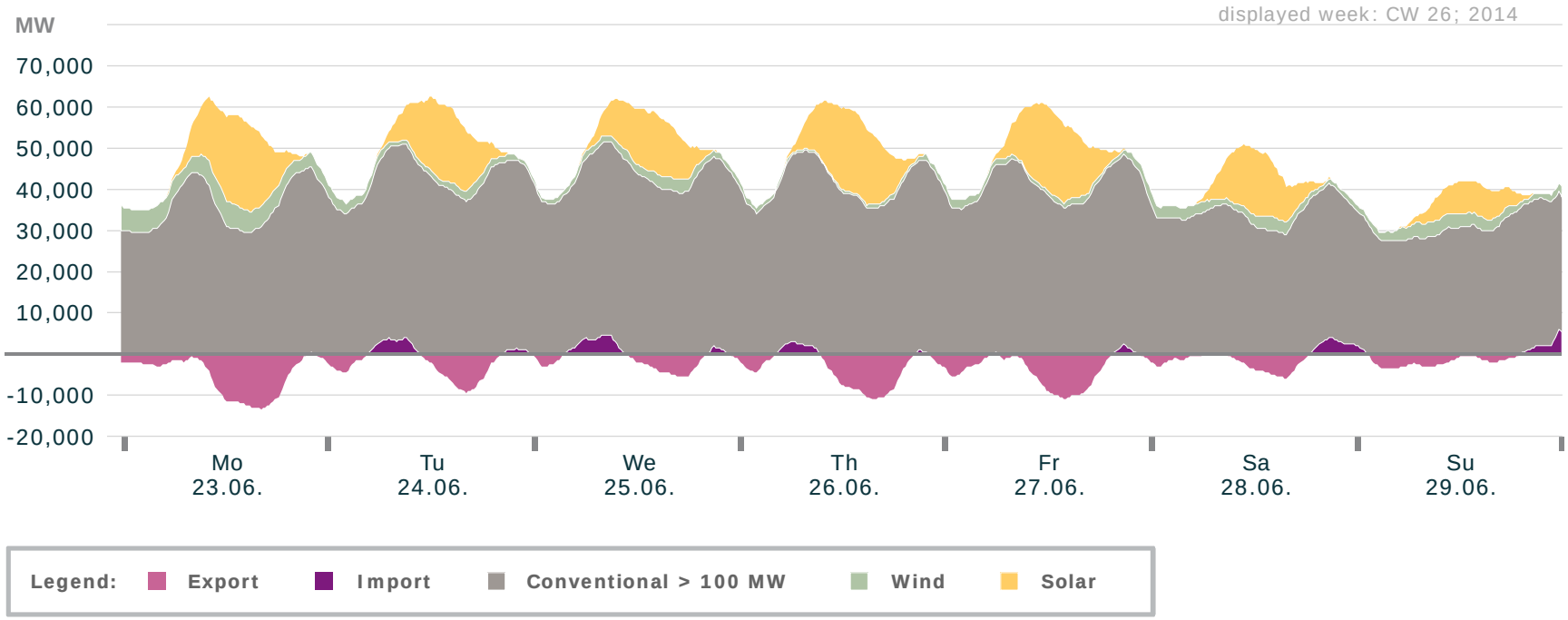


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 26

Actual production

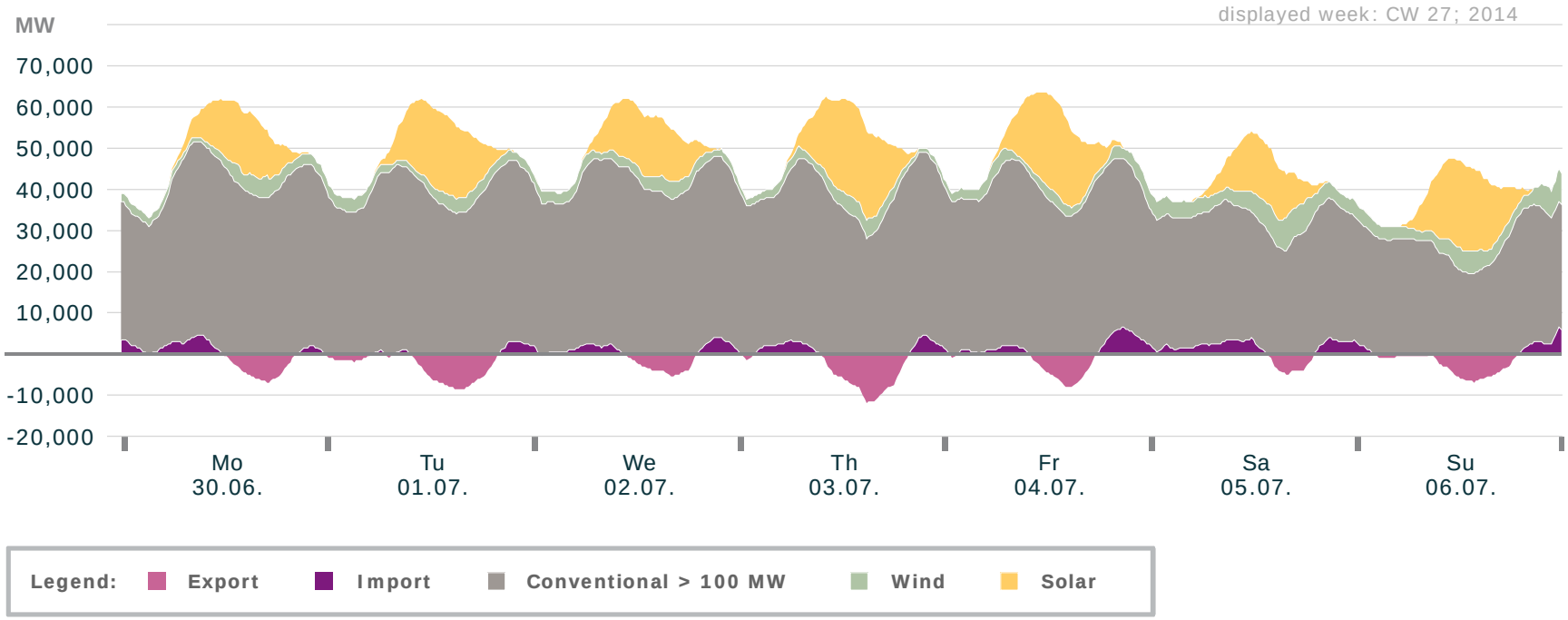


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 27

Actual production

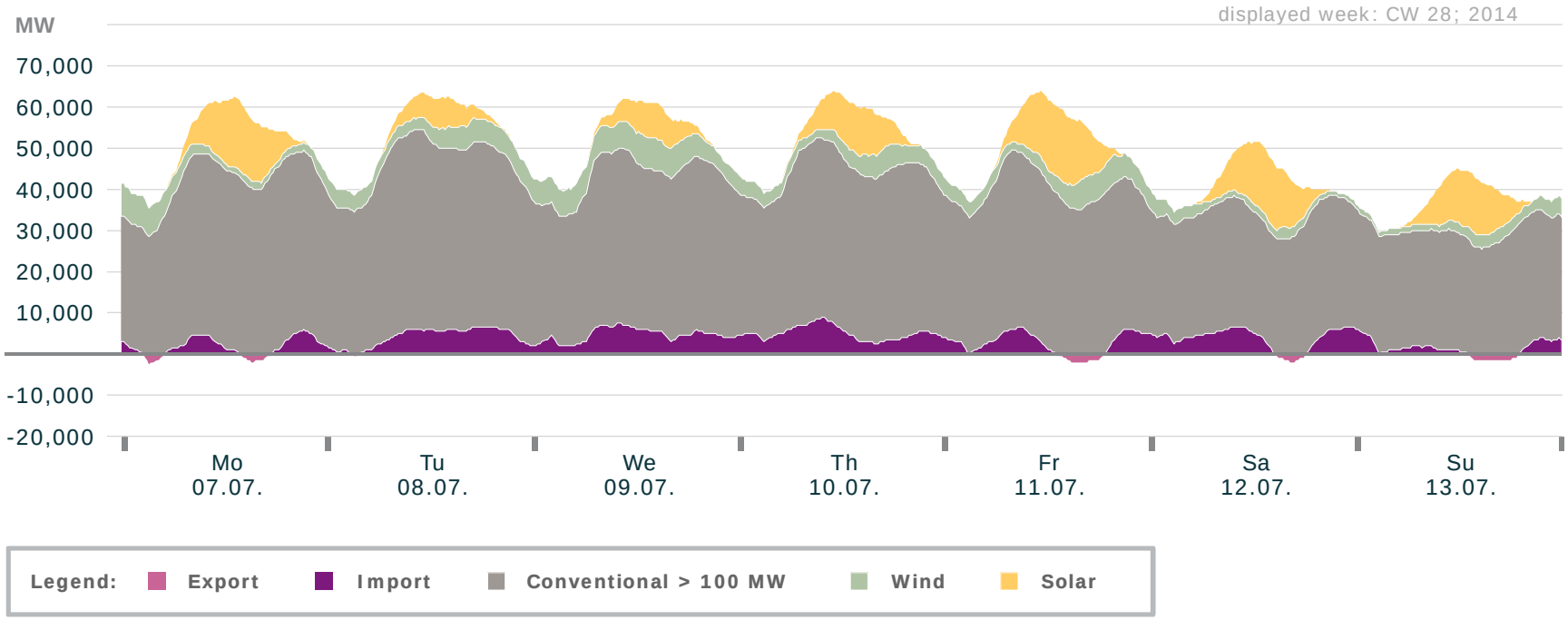


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 28

Actual production

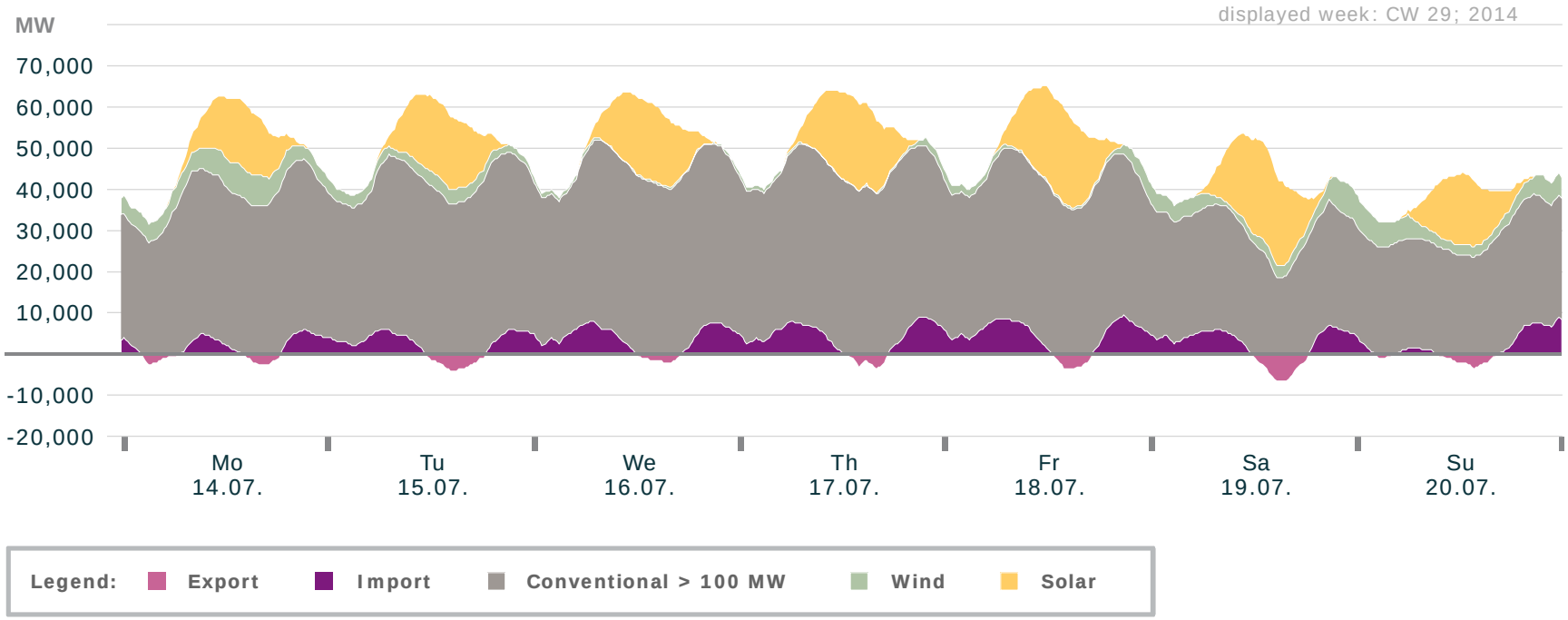


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 29

Actual production

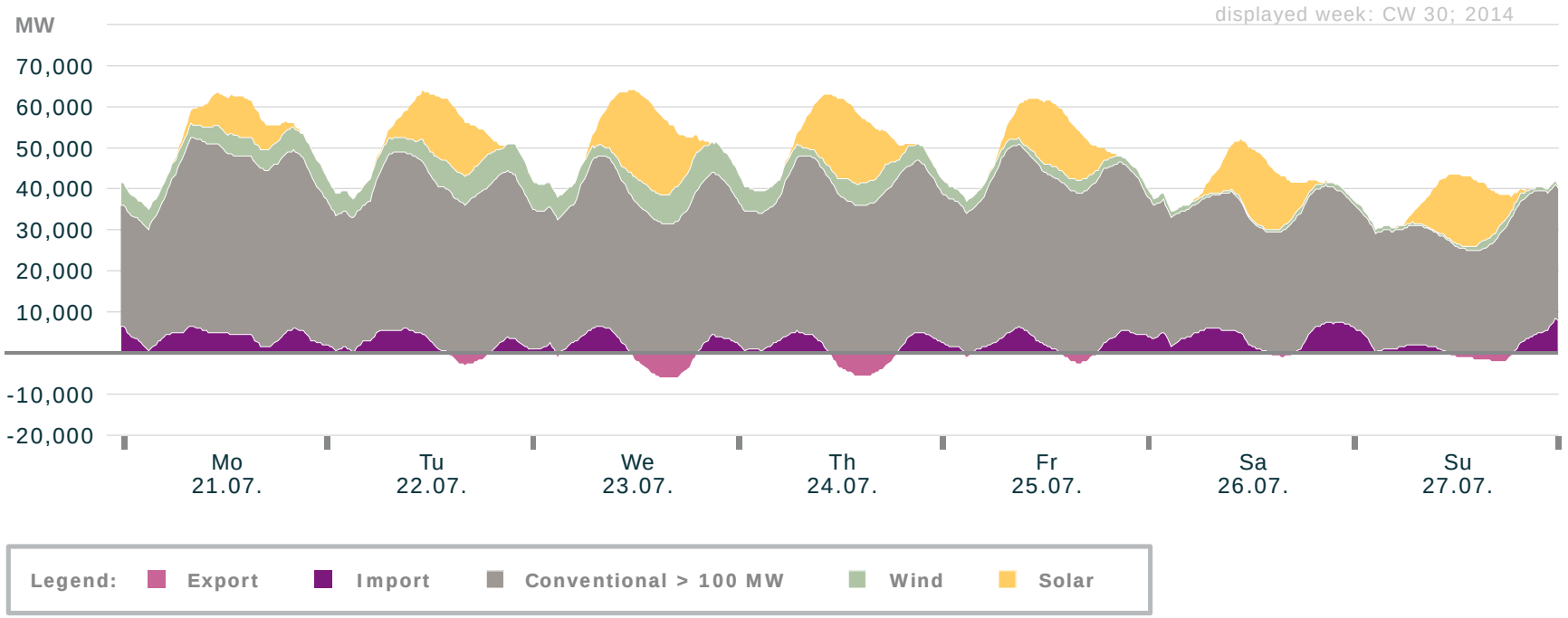


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 30

Actual production

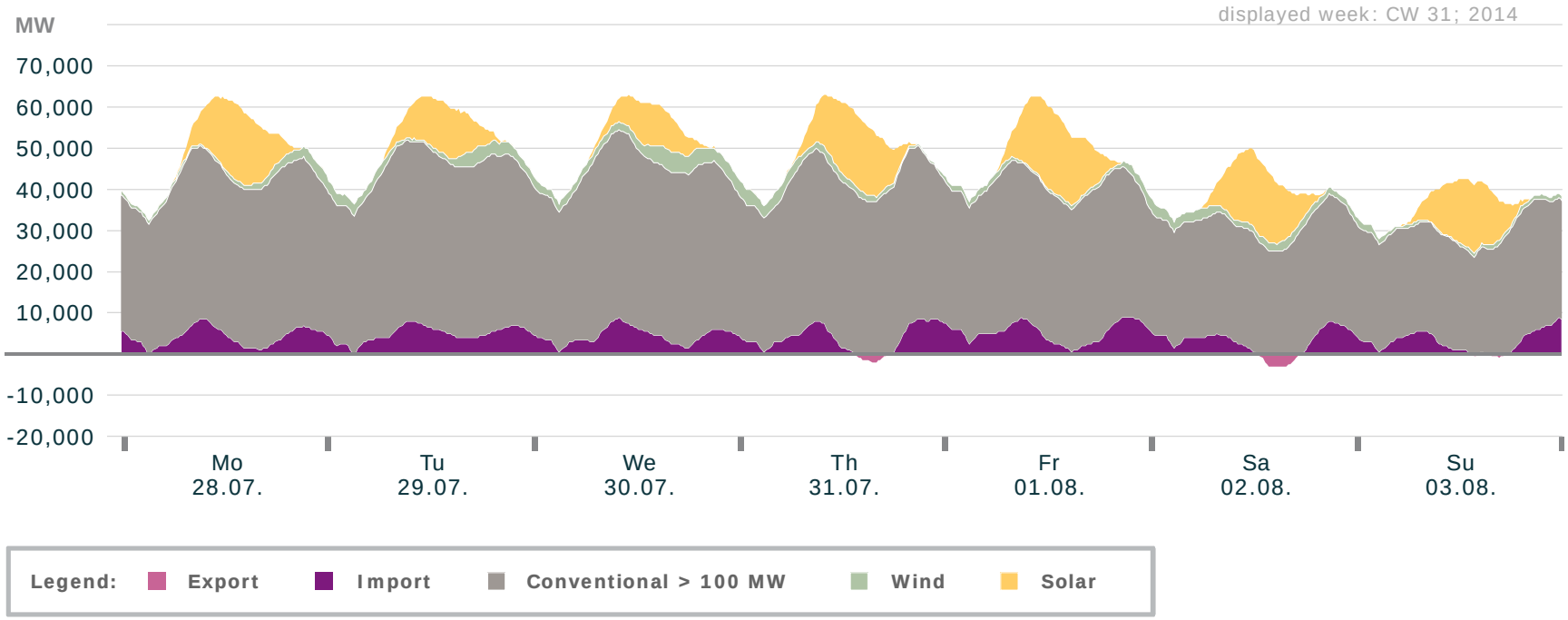


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 31

Actual production

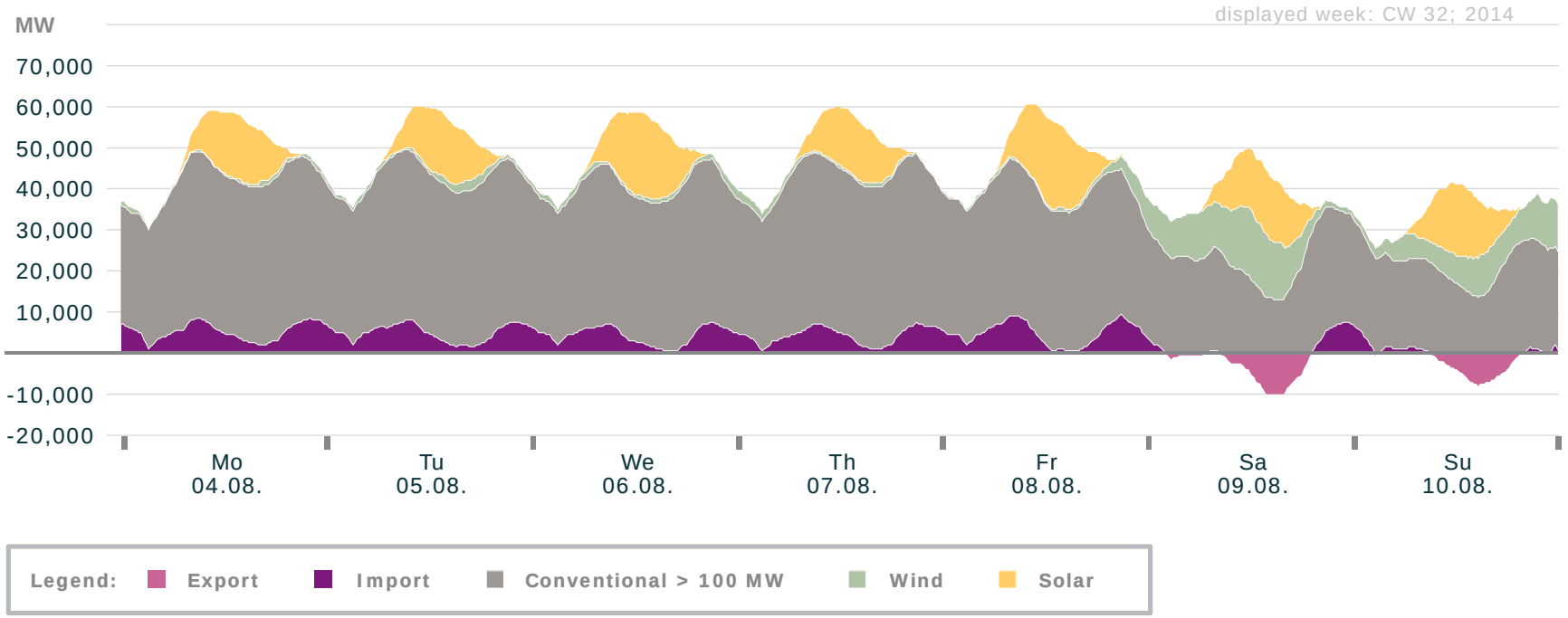


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 32

Actual production

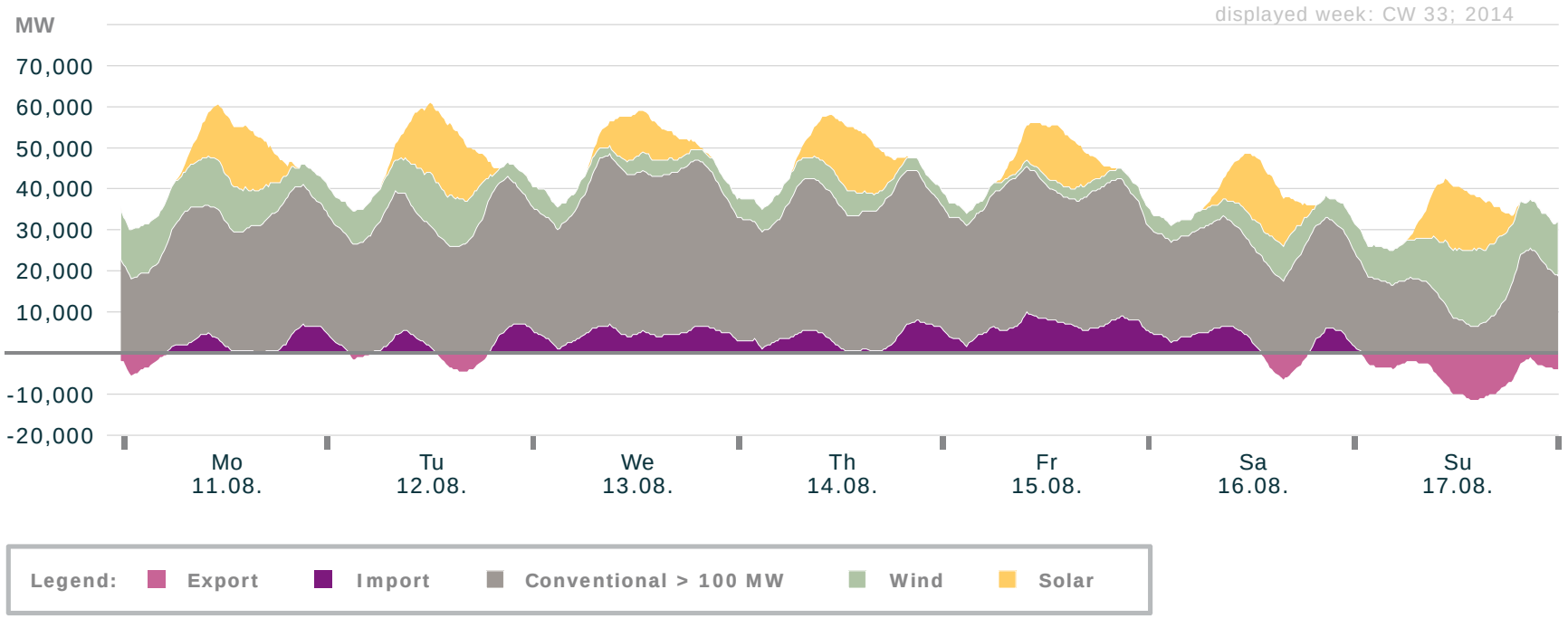


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 33

Actual production

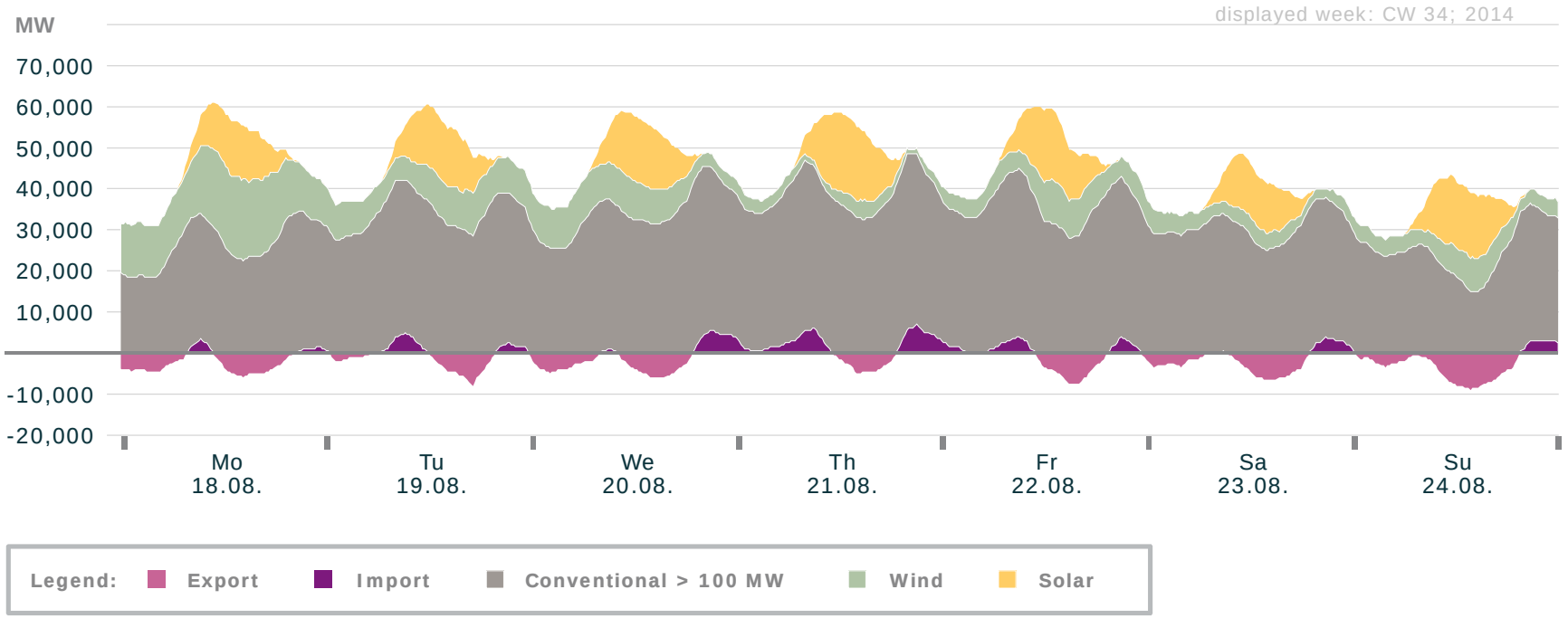


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 34

Actual production

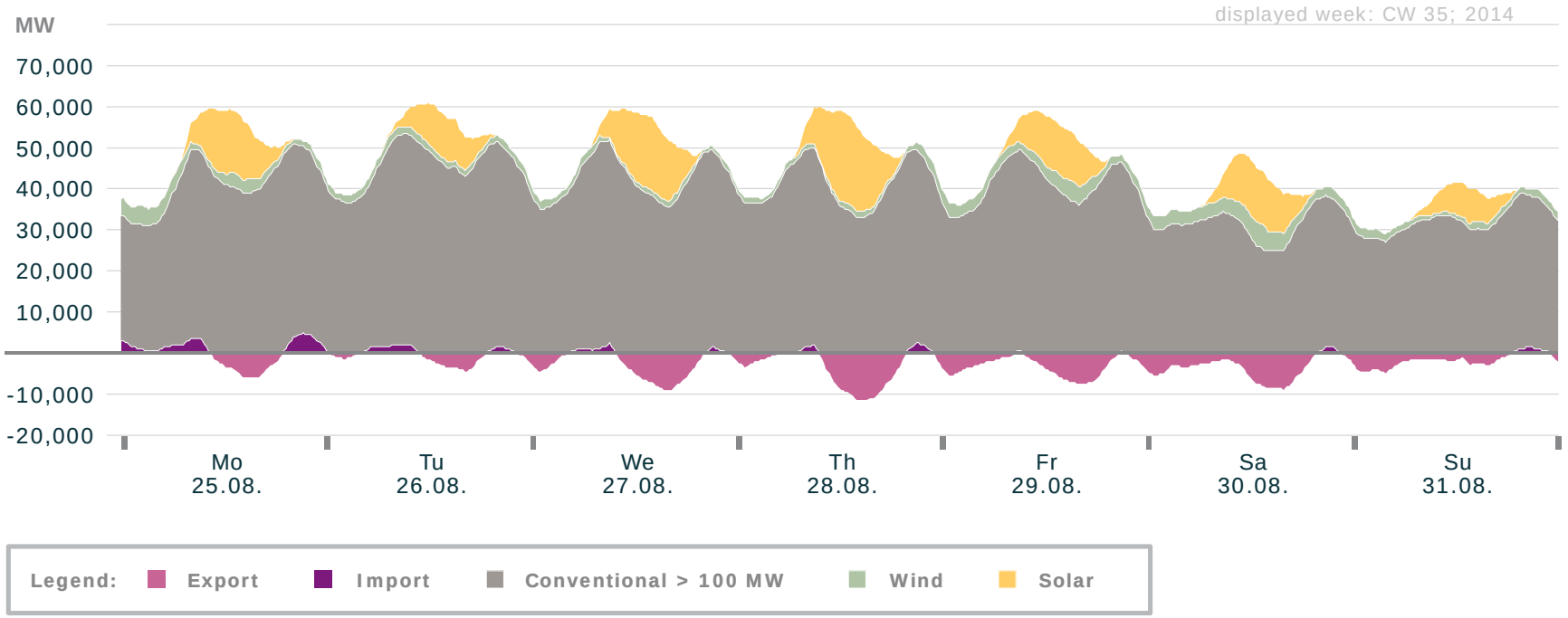


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 35

Actual production

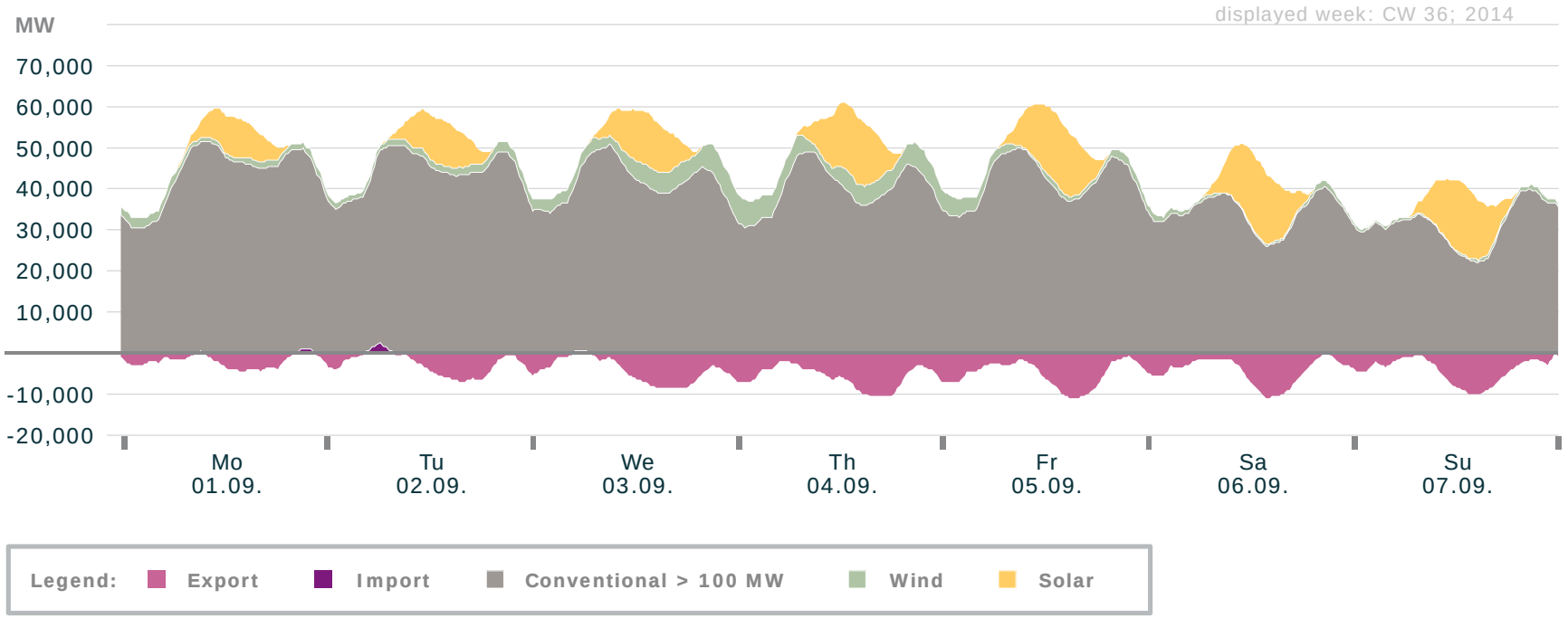


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 36

Actual production

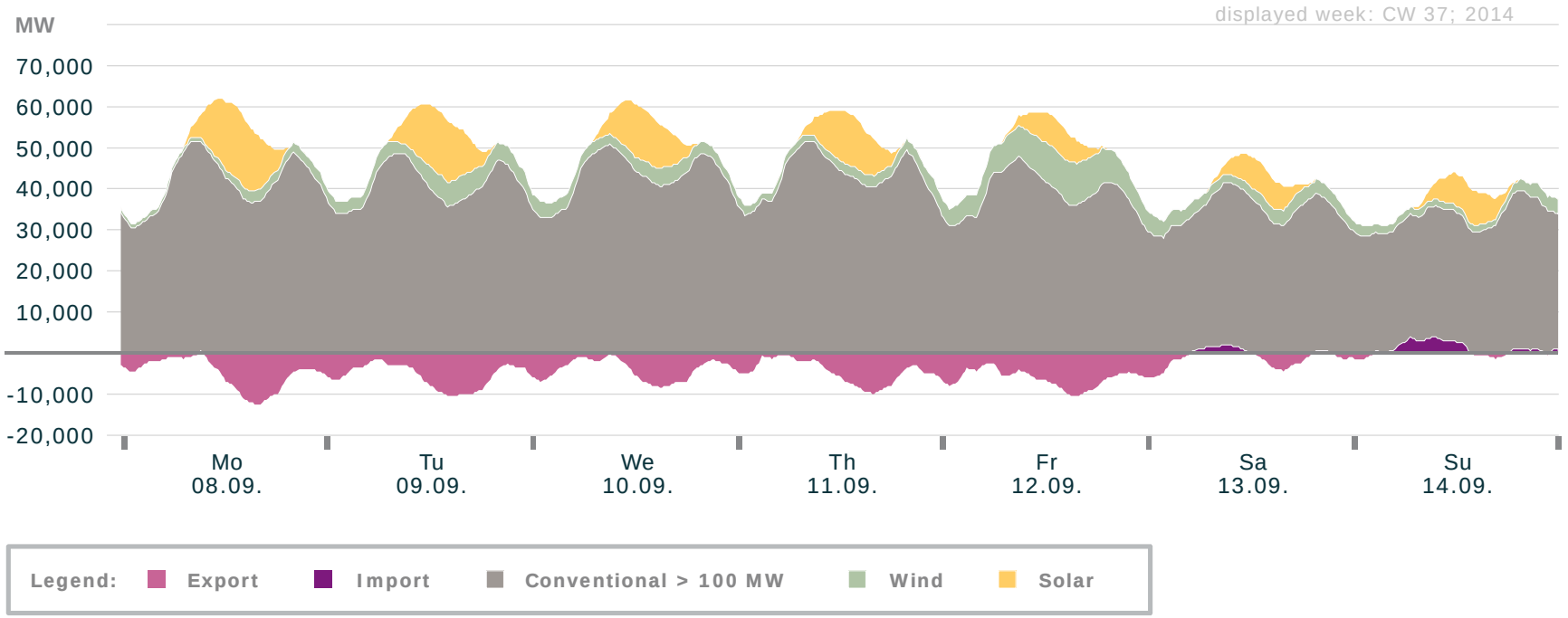


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 37

Actual production

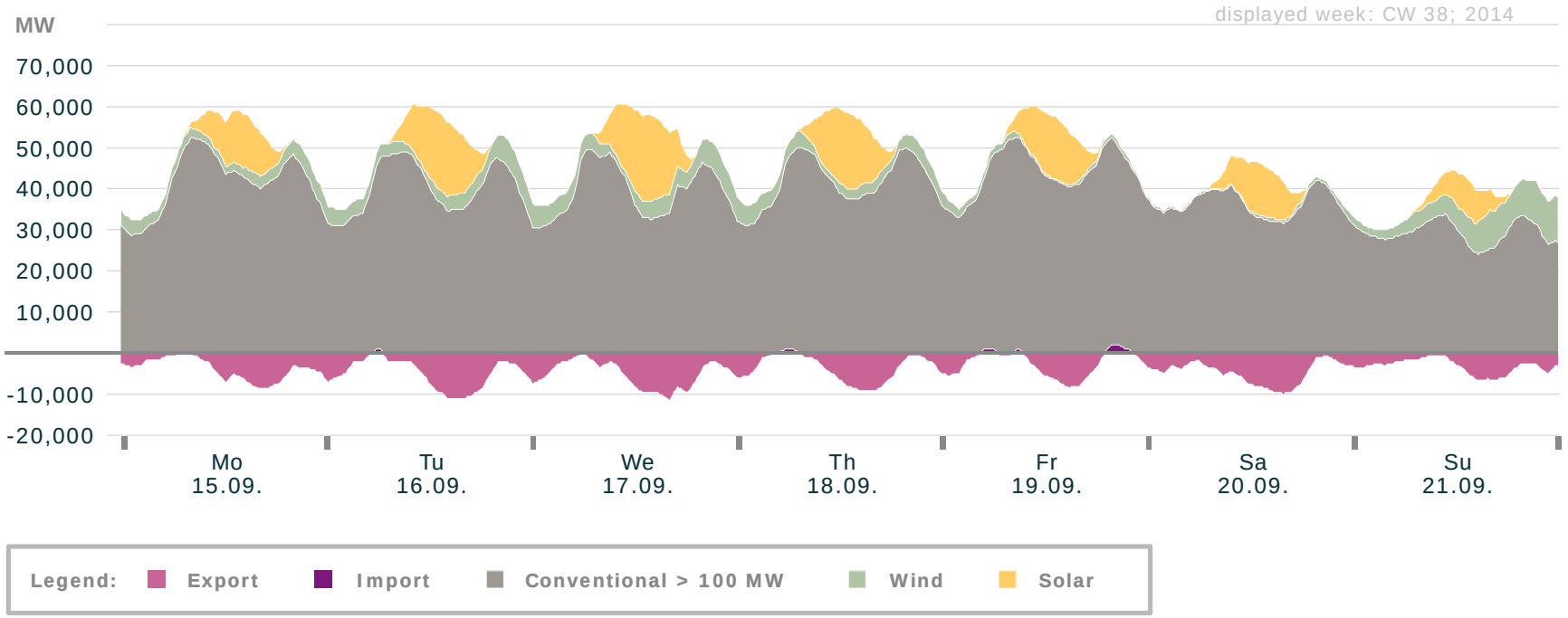


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 38

Actual production

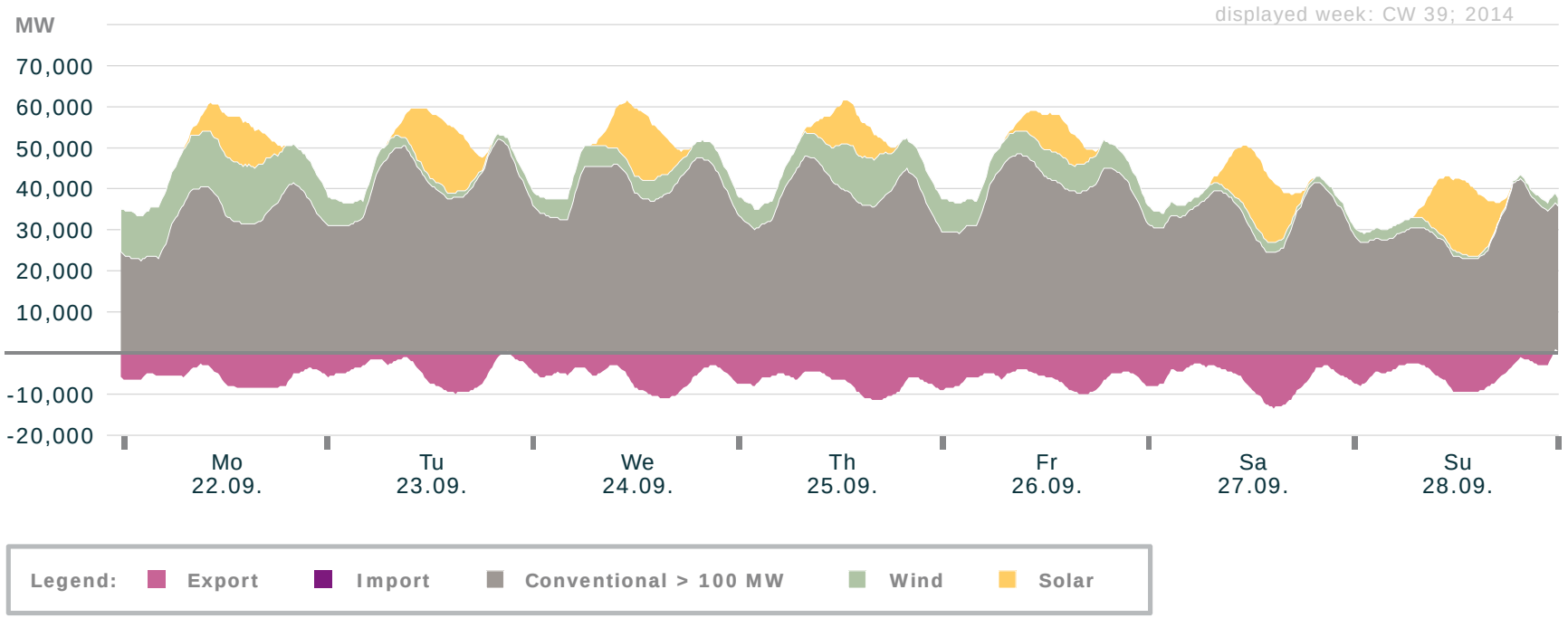


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 39

Actual production

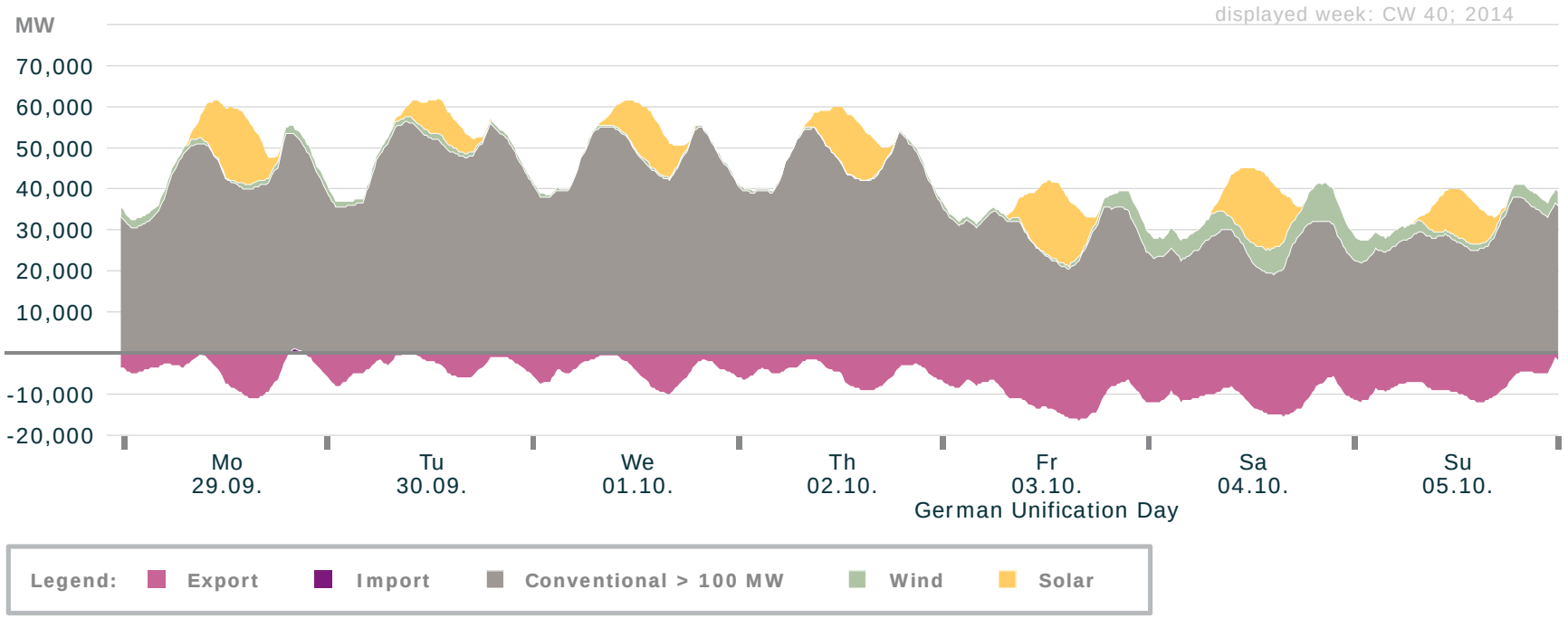


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 40

Actual production

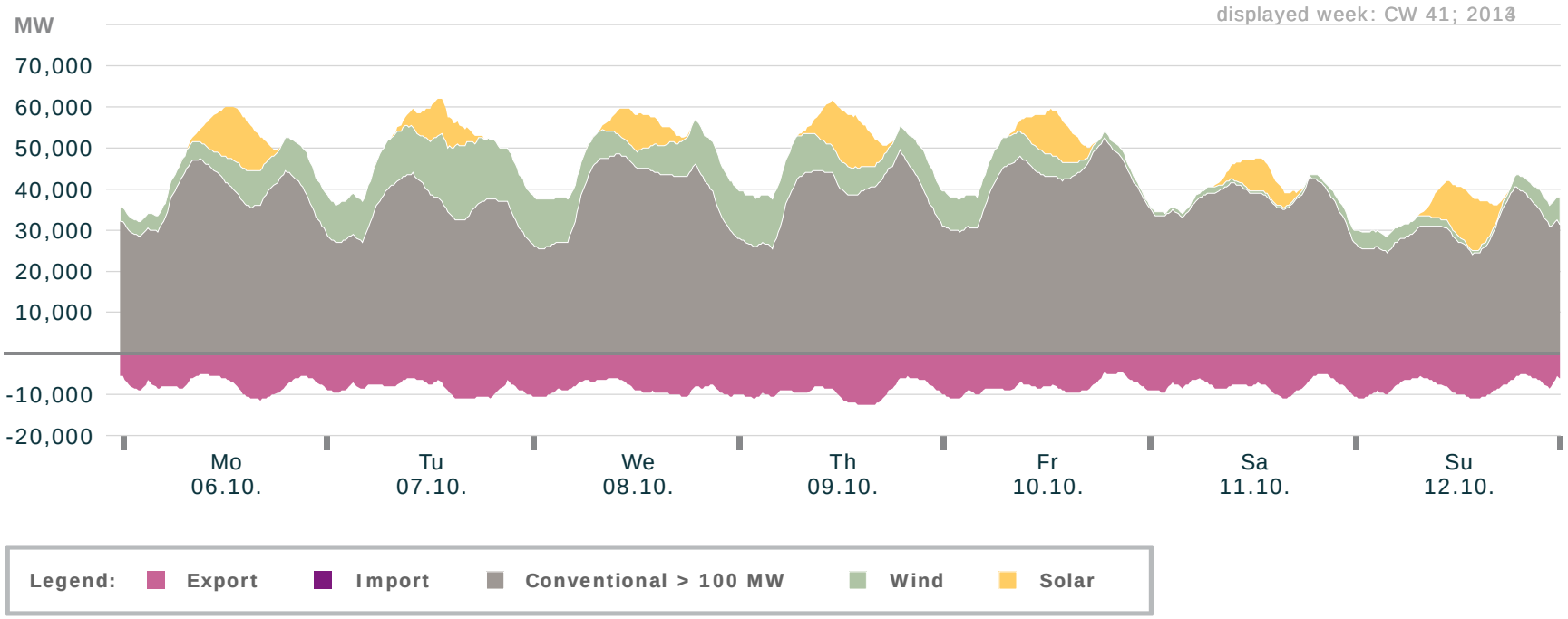


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 41

Actual production

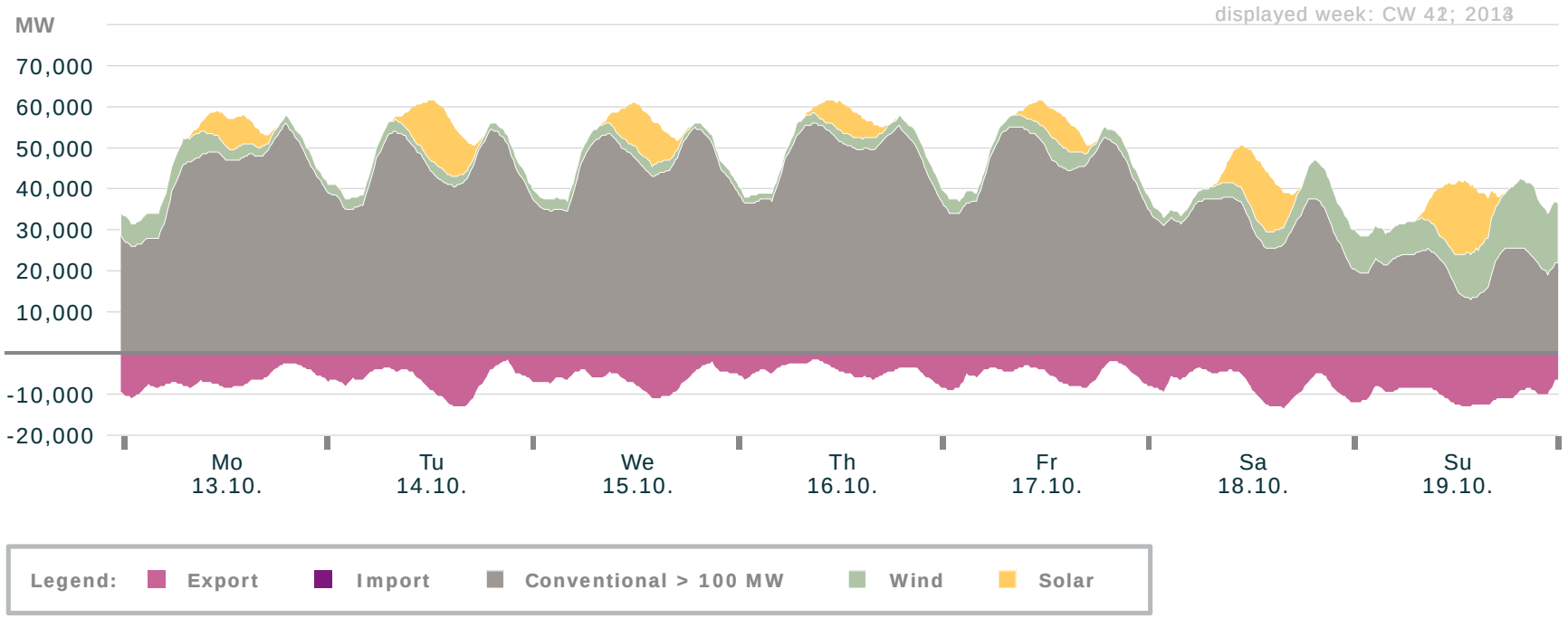


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 42

Actual production

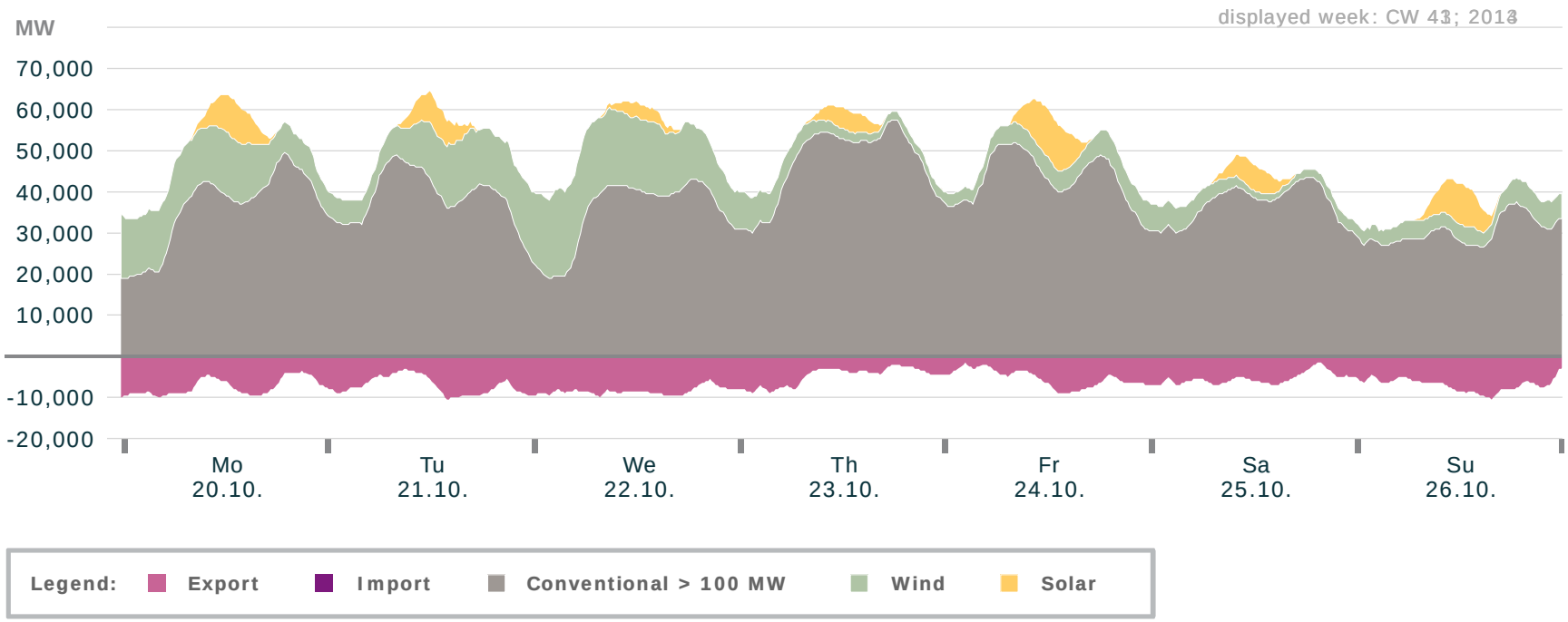


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 43

Actual production

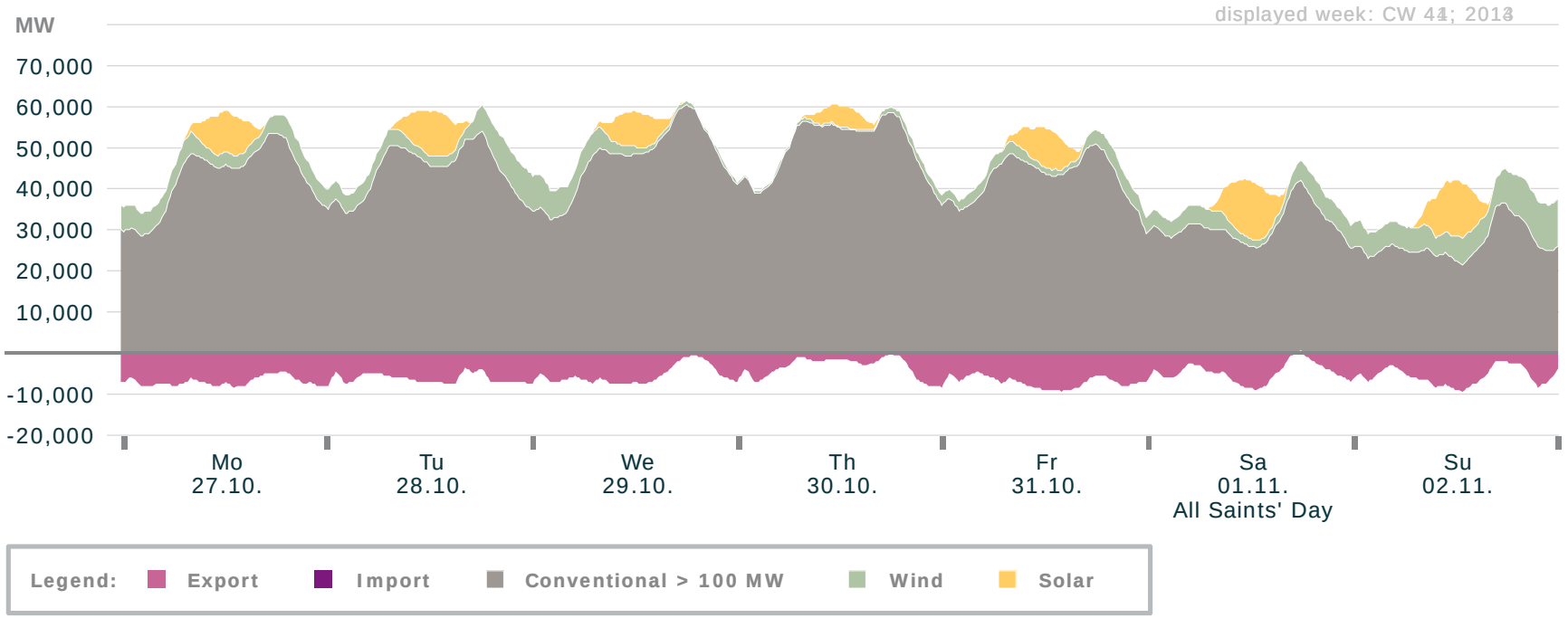


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 44

Actual production

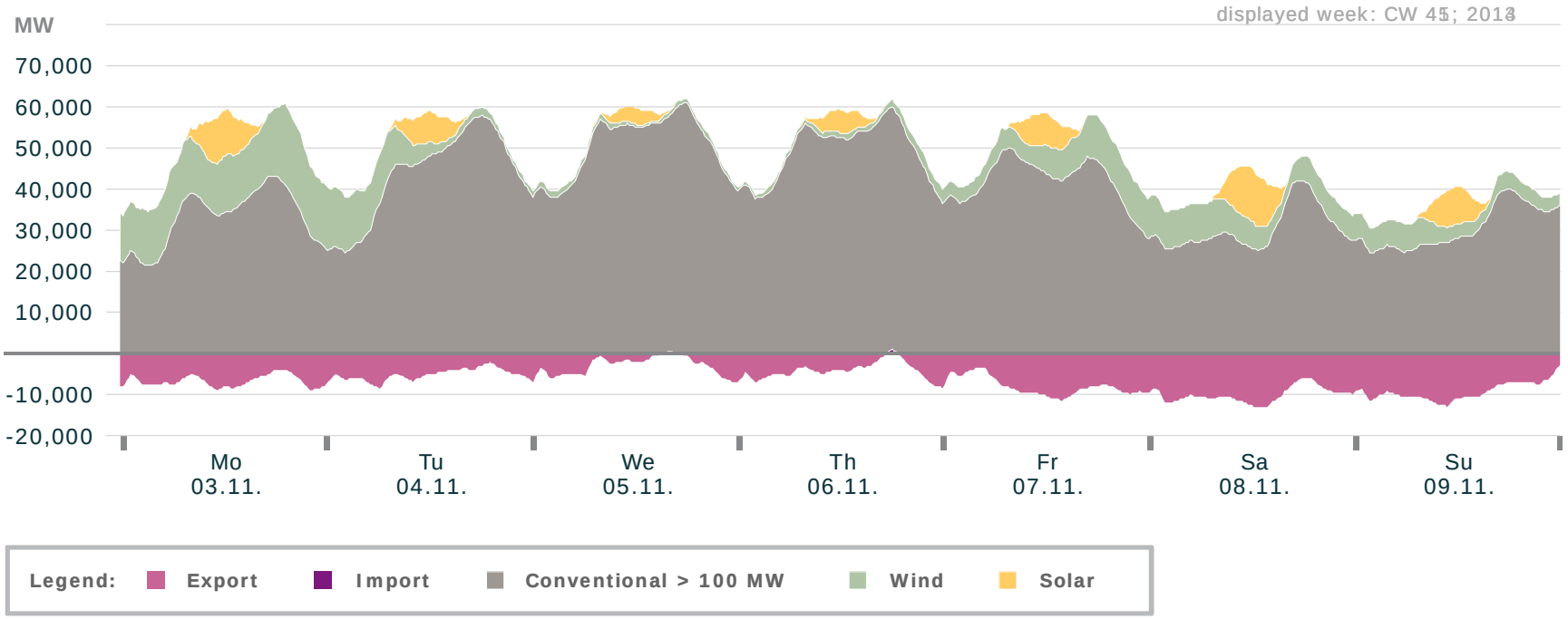


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 45

Actual production

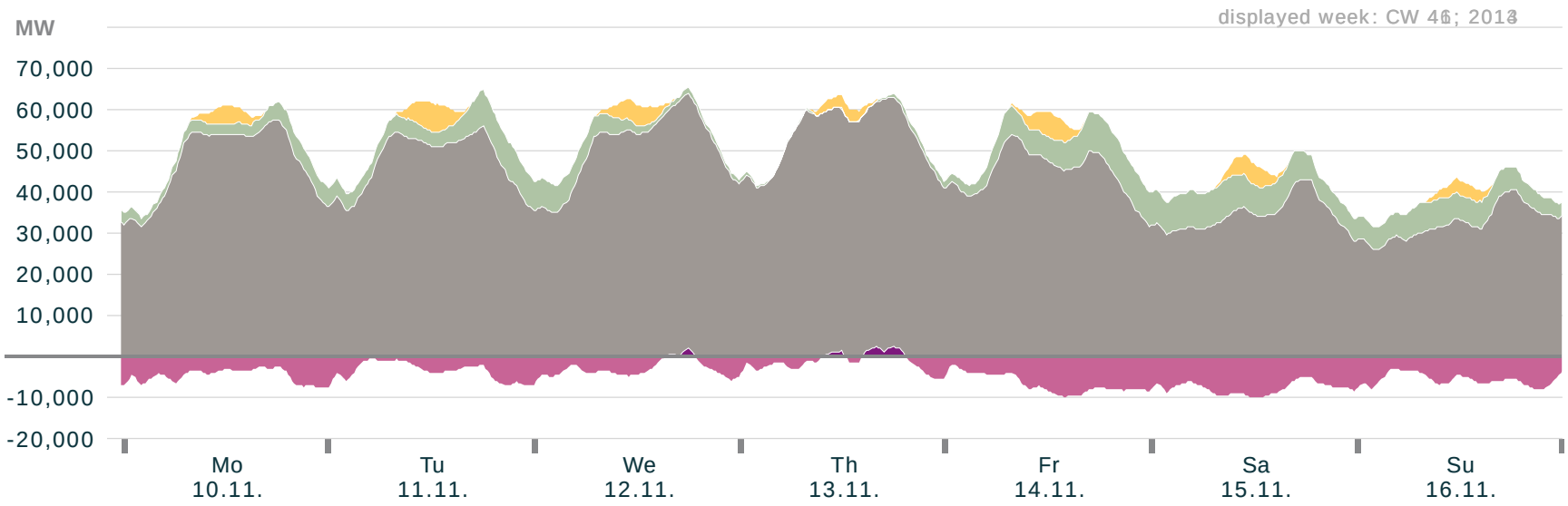


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 46

Actual production

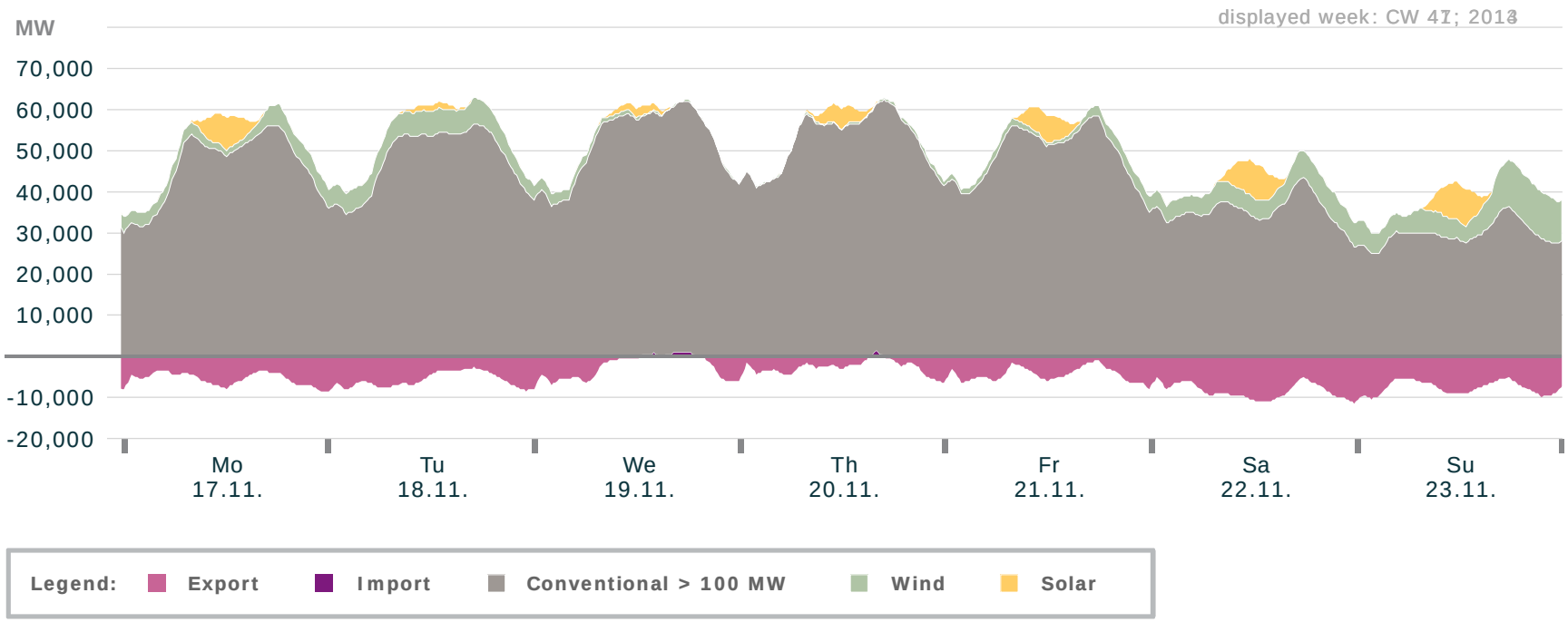


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 47

Actual production

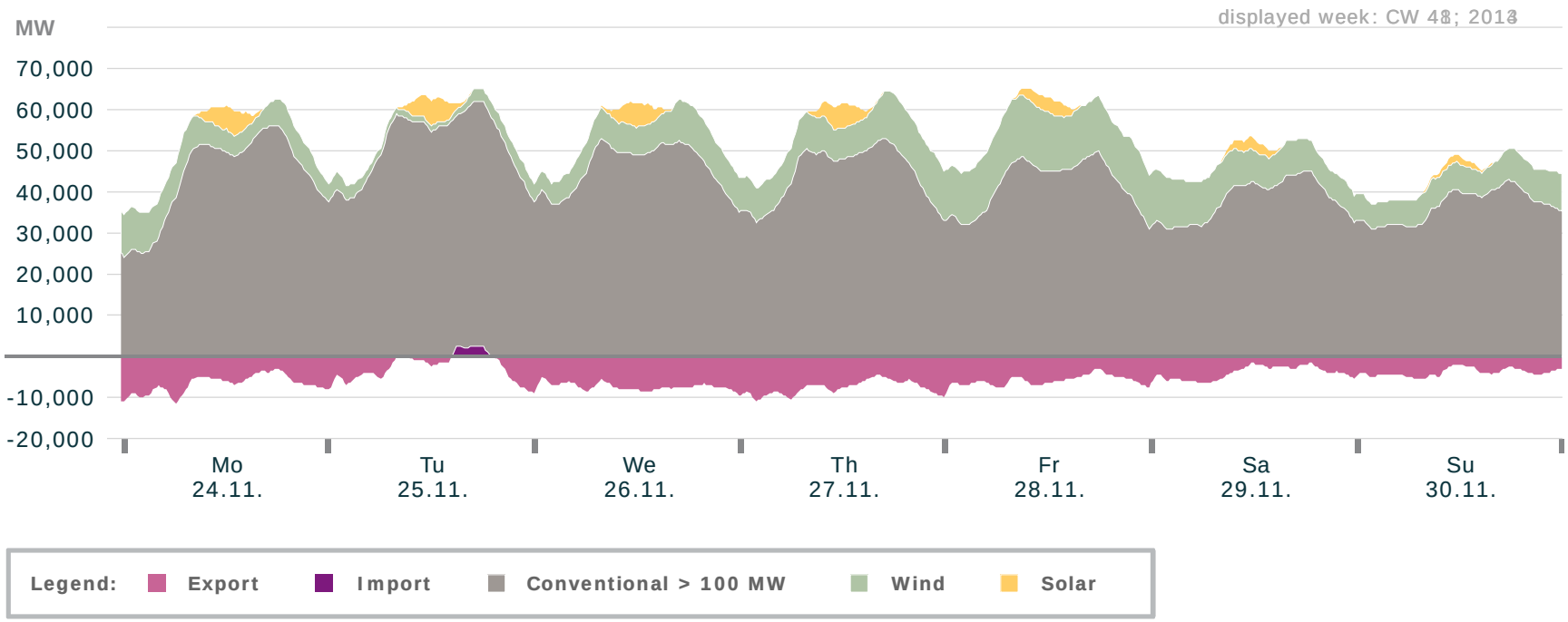


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 48

Actual production

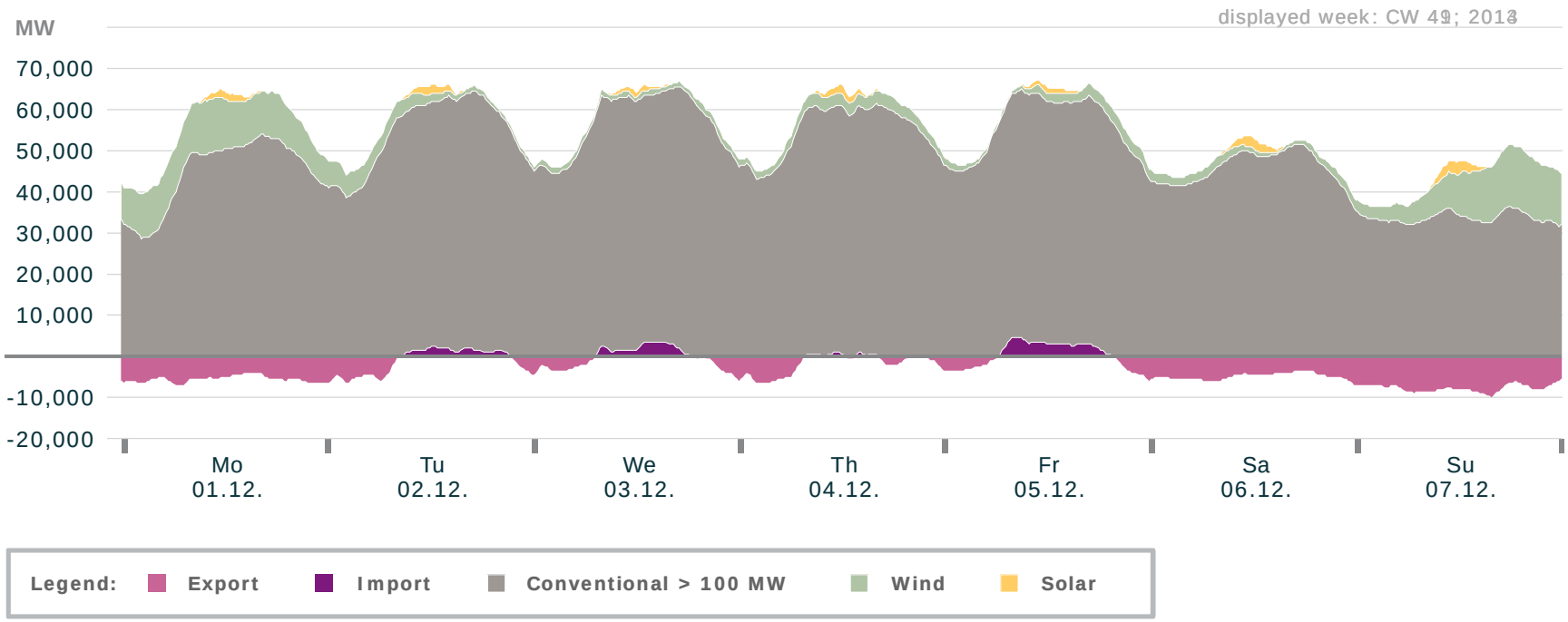


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 49

Actual production

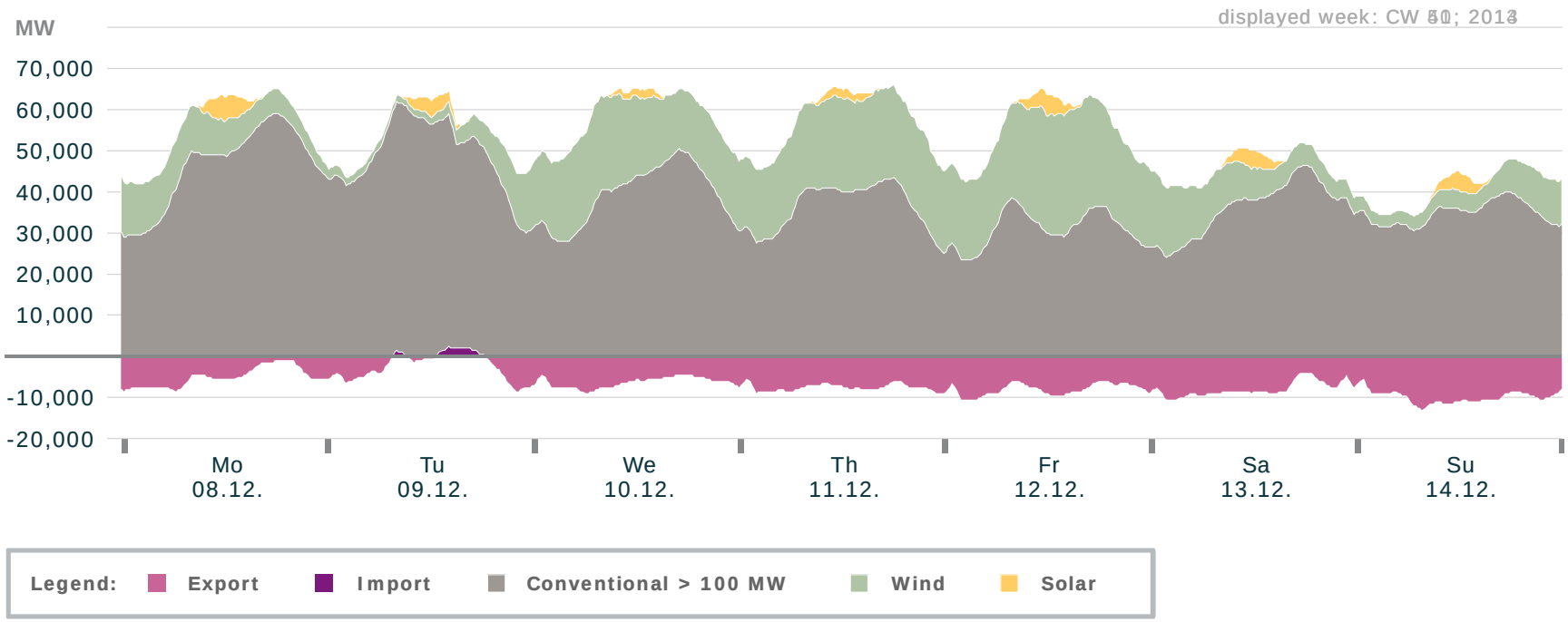


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 50

Actual production

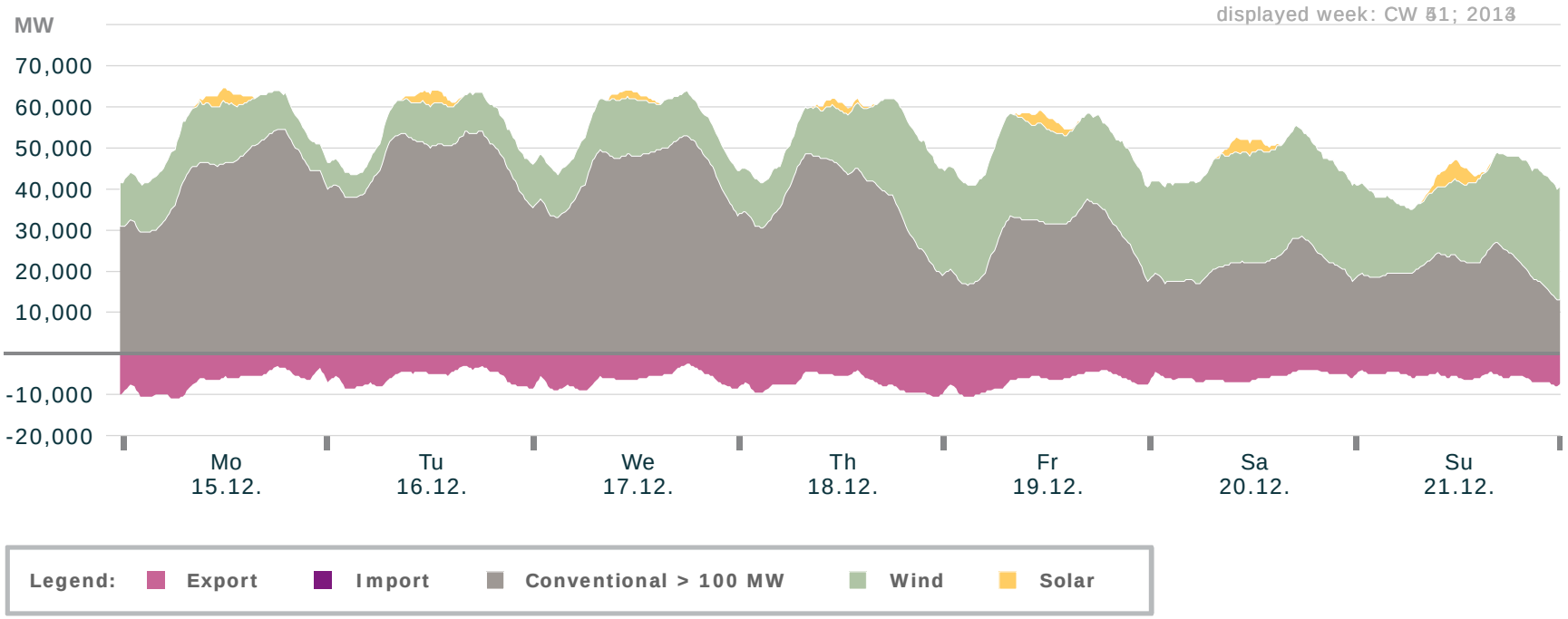


Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 51

Actual production



Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 52

- This diagram was not built, since the import/export data of Entso-e and Amprion for the Netherlands is not available.

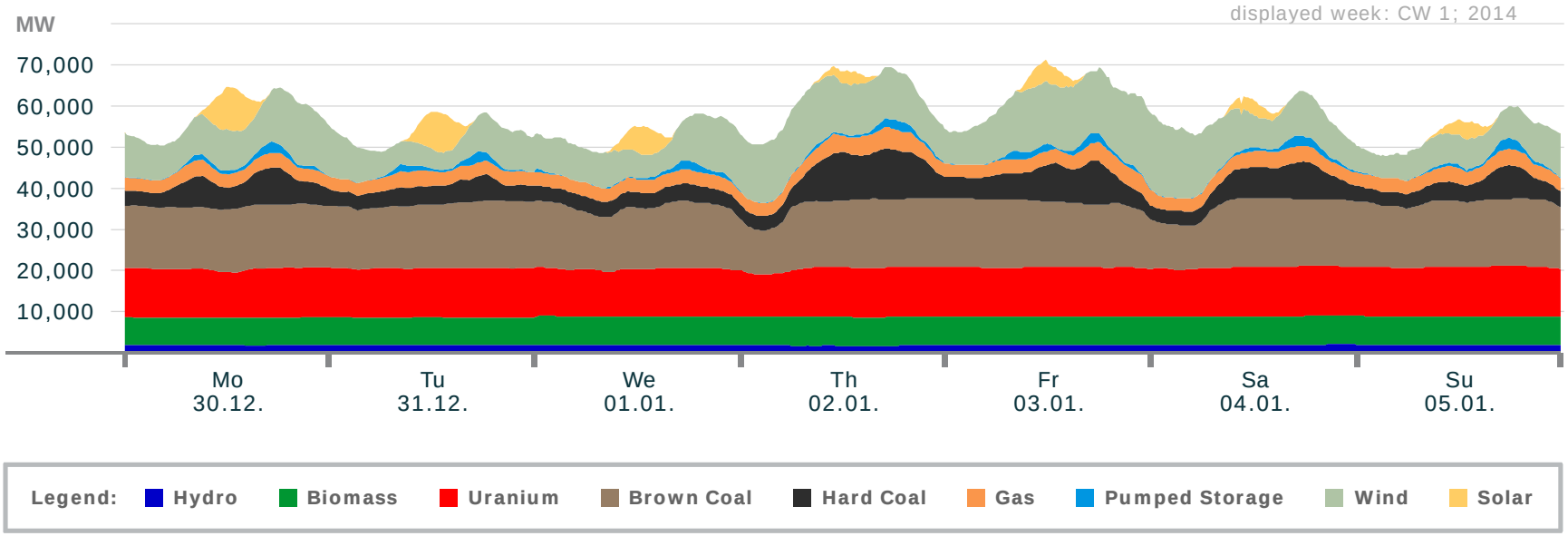
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
- Weekly power curves
  - Weekly power curves for conventional, wind and solar
  - Weekly power curves with export and import
  - Detailed weekly power curves
- Exemplary daily power curves

Electricity Production in Germany: Calendar Week 1

Actual production



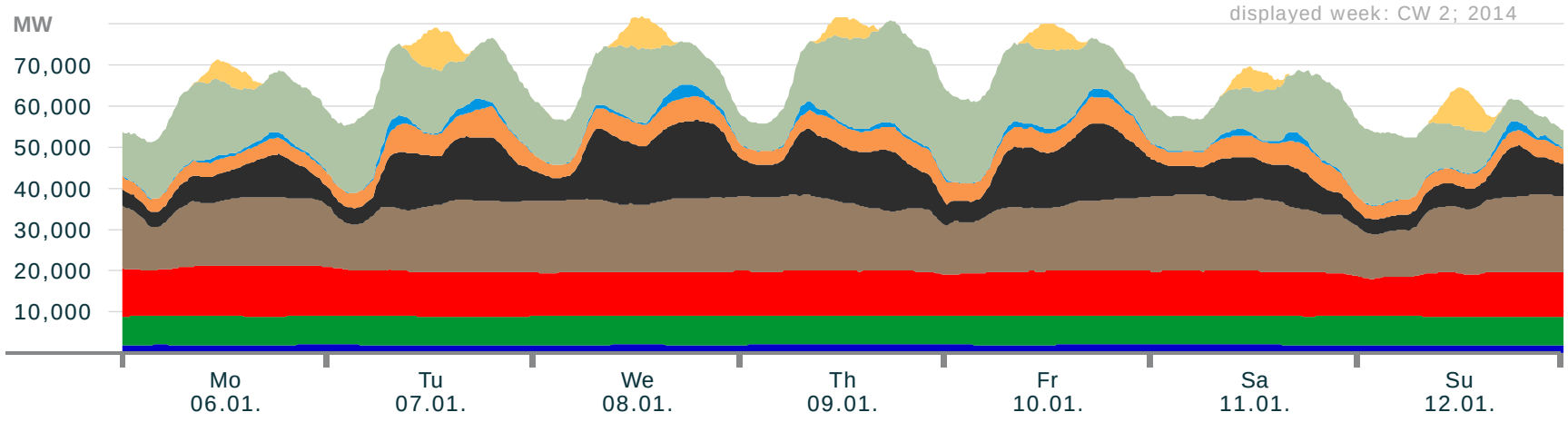
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.4		10.2	10.5	3.3	3.1	0	4.1	0
max. power (GW)	1.8		12.1	16.8	12.5	5.1	3.1	19.0	10.6
weekly energy (TWh)	0.3	1.1	2.0	2.5	0.9	0.6	0.1	1.7	0.2

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 2

Actual production



Legend: Hydro | Biomass | Uranium | Brown Coal | Hard Coal | Gas | Pumped Storage | Wind | Solar

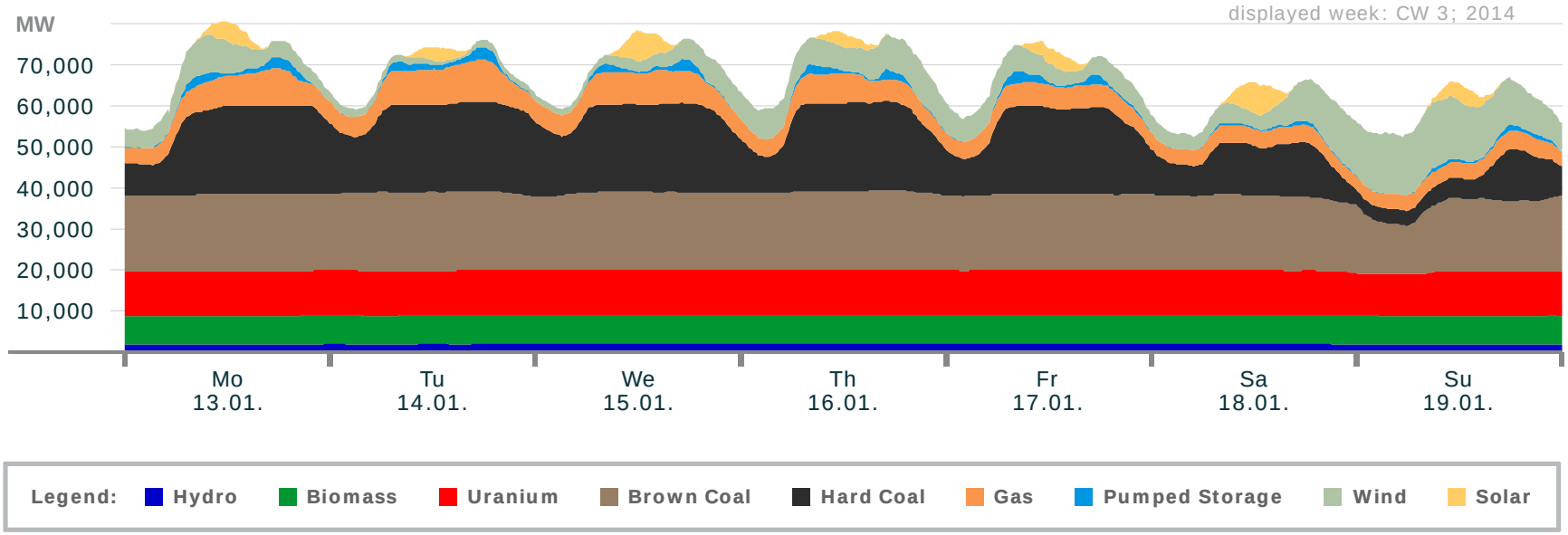
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.6		8.9	10.5	3.5	3.1	0	4.1	0
max. power (GW)	1.9		12.1	18.8	19.1	7.6	3.3	25.0	10.1
weekly energy (TWh)	0.3	1.2	1.8	2.7	1.7	0.8	0.1	2.4	0.2

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 3

Actual production



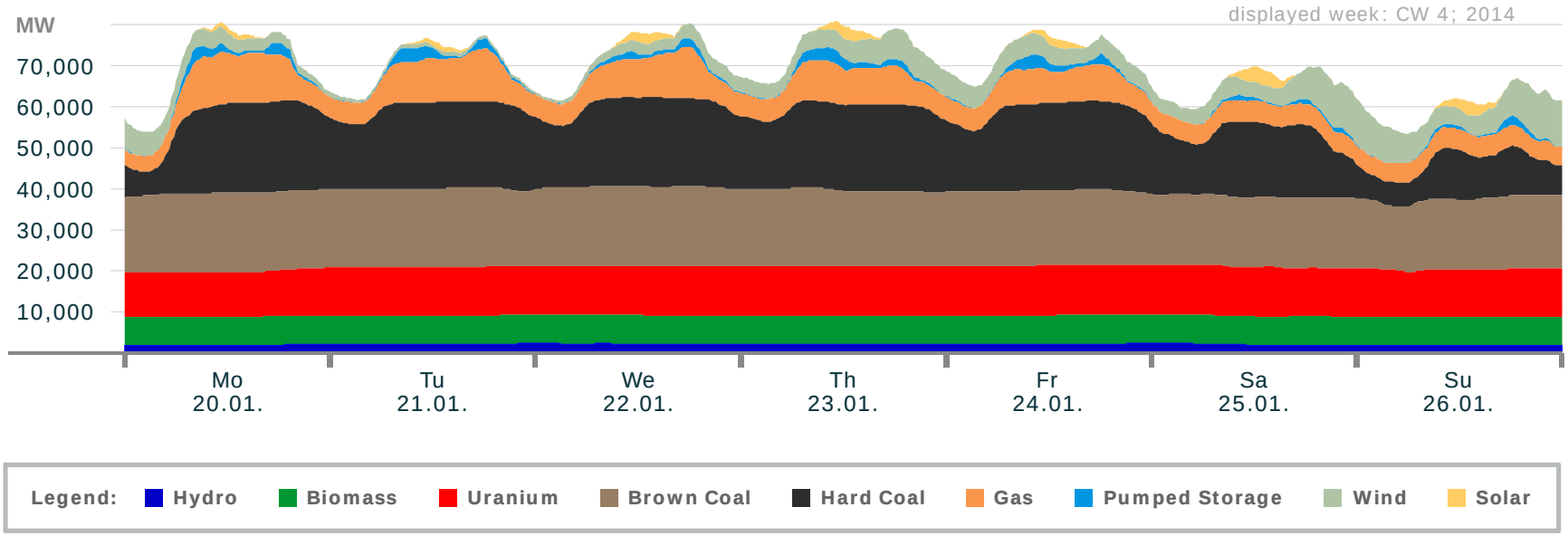
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.6		9.9	11.7	3.5	3.3	0	0.5	0
max. power (GW)	2.0		10.8	19.4	21.9	10.3	3.2	16.1	7.7
weekly energy (TWh)	0.3	1.2	1.8	3.1	2.6	0.9	0.1	1.0	0.2

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 4

Actual production



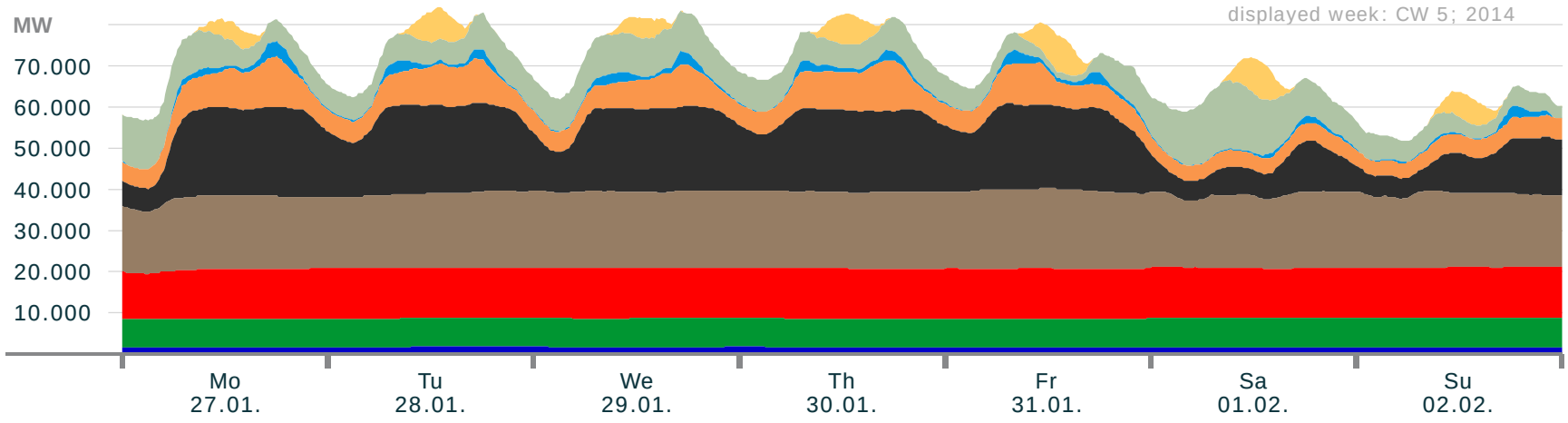
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.6		10.6	15.6	5.8	3.6	0	0.5	0
max. power (GW)	2.2		12.1	19.3	22.0	12.9	3.6	11.8	4.1
weekly energy (TWh)	0.3	1.2	2.0	3.1	2.9	1.2	0.2	0.7	0.1

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 5

Actual production



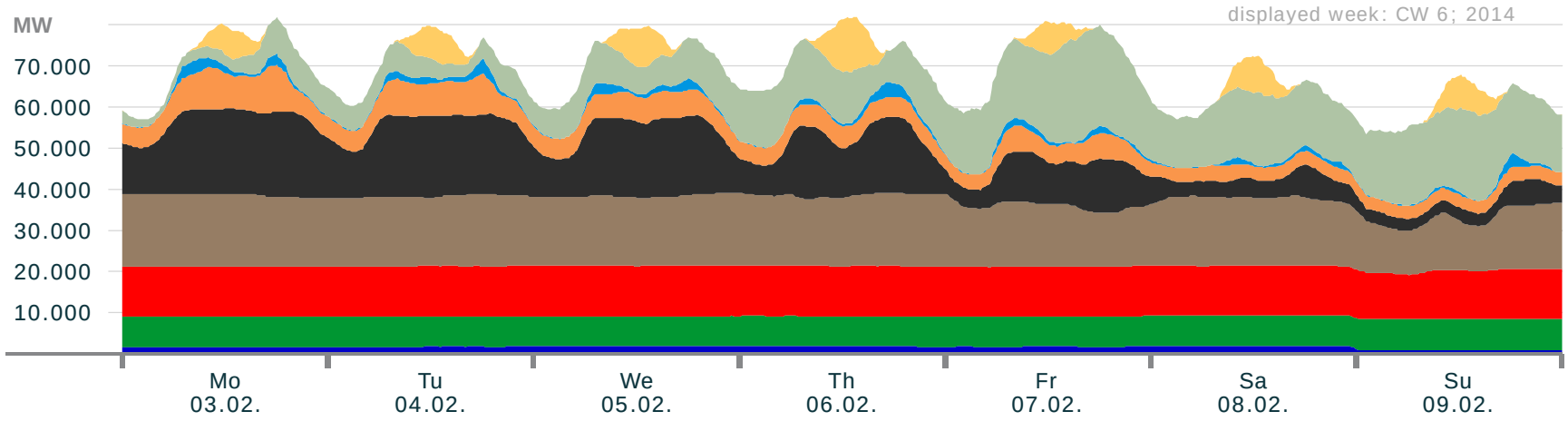
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.3		11.0	14.9	4.7	3.5	0	1.4	0
max. power (GW)	1.8		12.1	19.4	21.7	12.3	3.7	16.7	8.9
weekly energy (TWh)	0.3	1.2	2.0	3.0	2.6	1.1	0.2	1.2	0.2

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 6

Actual production



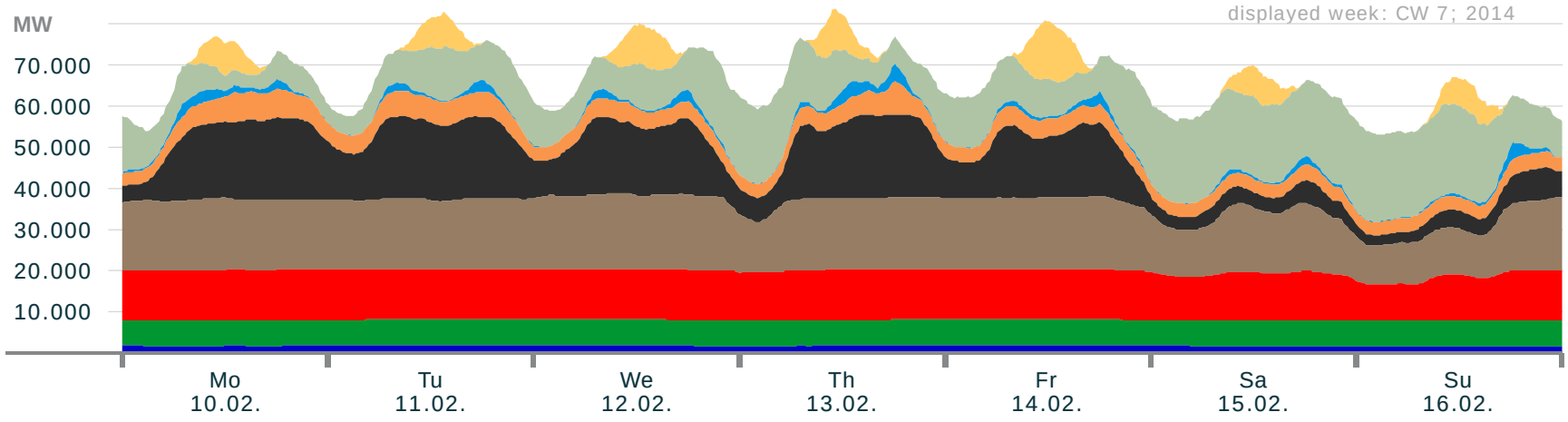
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.8		10.7	10.6	2.8	3.0	0	1.5	0
max. power (GW)	1.7		12.1	17.8	20.7	11.4	3.8	25.6	13.2
weekly energy (TWh)	0.3	1.2	2.0	2.7	2.0	0.9	0.2	2.0	0.3

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 7

Actual production



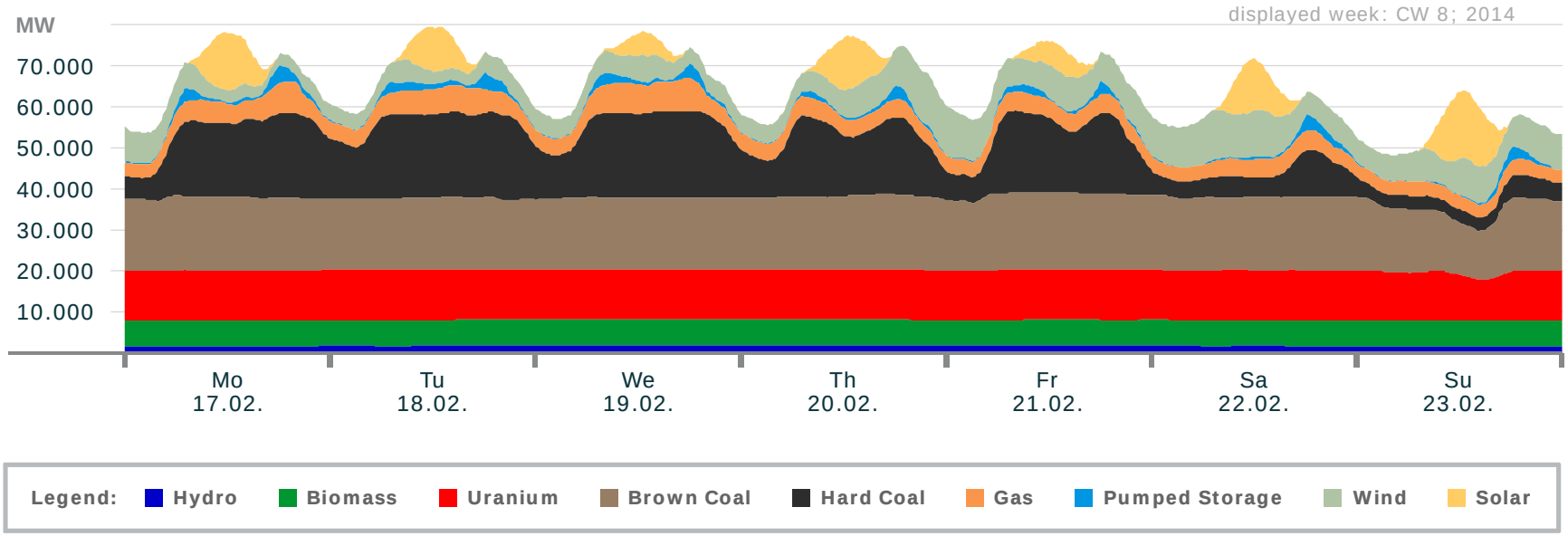
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.4		8.6	9.4	2.5	3.1	0	2.9	0
max. power (GW)	1.7		12.1	18.6	20.2	8.2	4.1	22.3	14.1
weekly energy (TWh)	0.3	1.2	2.0	2.7	2.0	0.7	0.2	2.1	0.4

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 8

Actual production



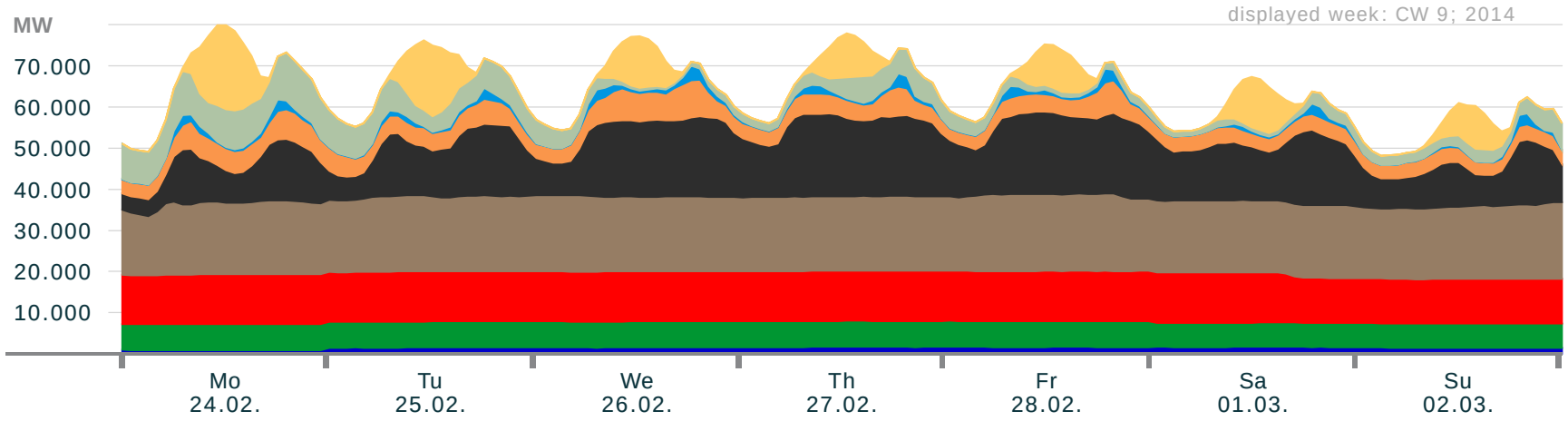
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.4		9.8	12.0	3.0	3.1	0	1.9	0
max. power (GW)	1.7		12.1	18.9	21.0	8.2	4.3	12.7	16.5
weekly energy (TWh)	0.3	1.1	2.0	2.9	2.2	0.8	0.2	1.1	0.4

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 9

Actual production



Legend: Hydro | Biomass | Uranium | Brown Coal | Hard Coal | Gas | Pumped Storage | Wind | Solar

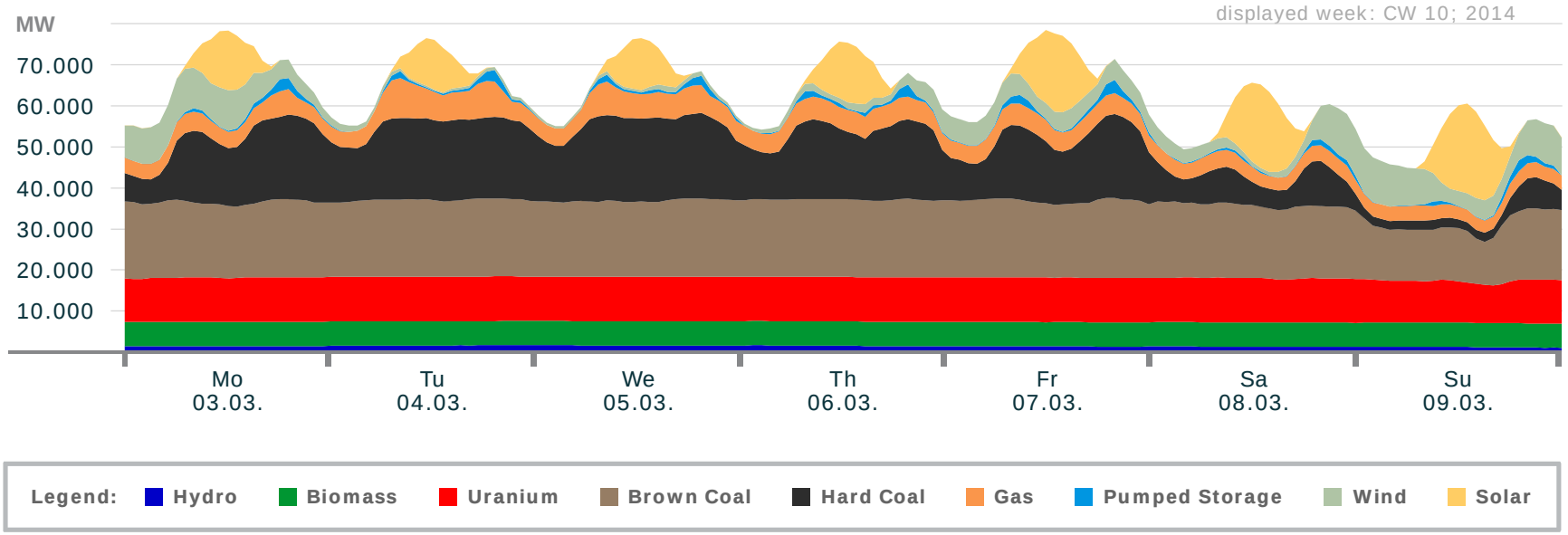
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.7		10.5	14.4	3.9	2.8	0	0.5	0
max. power (GW)	1.5		12.1	18.8	20.1	9.1	3.5	12.0	20.4
weekly energy (TWh)	0.2	1.0	2.0	3.0	2.3	0.8	0.1	0.7	0.6

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 10

Actual production



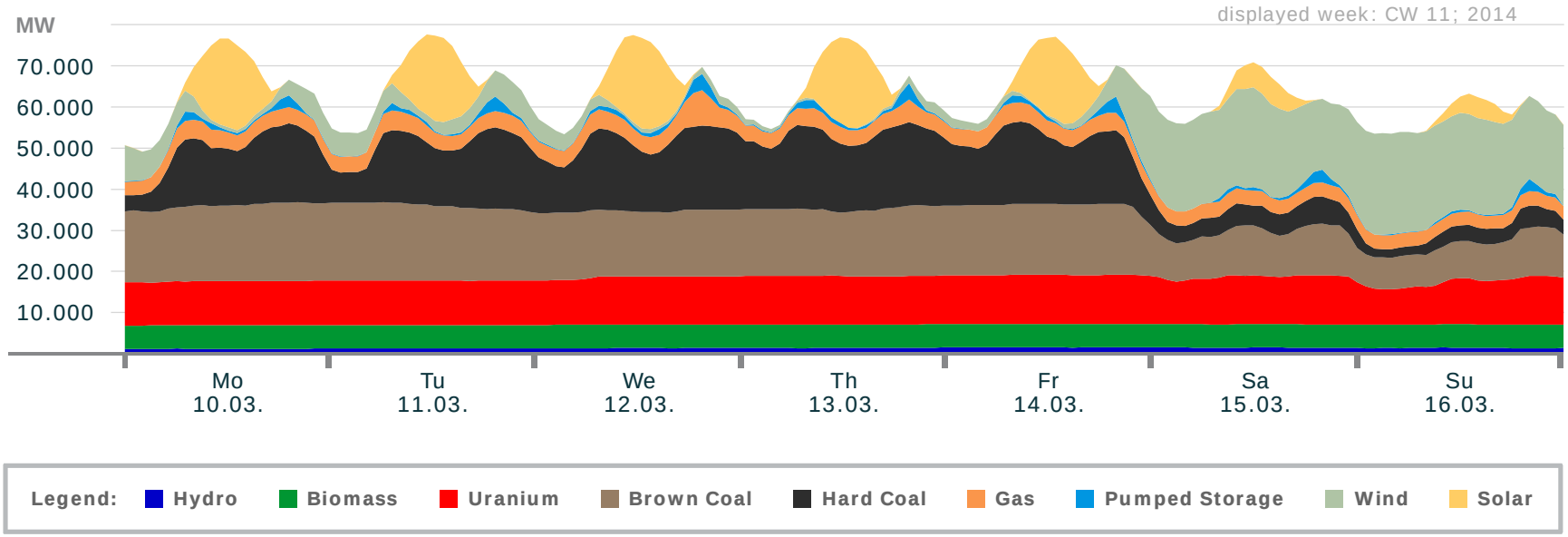
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.9		9.1	10.4	2.1	3.0	0	0.3	0
max. power (GW)	1.6		10.8	19.4	20.9	9.7	3.2	11.6	21.9
weekly energy (TWh)	0.2	1.0	1.8	3.0	2.2	0.8	0.1	0.7	0.7

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 11

Actual production



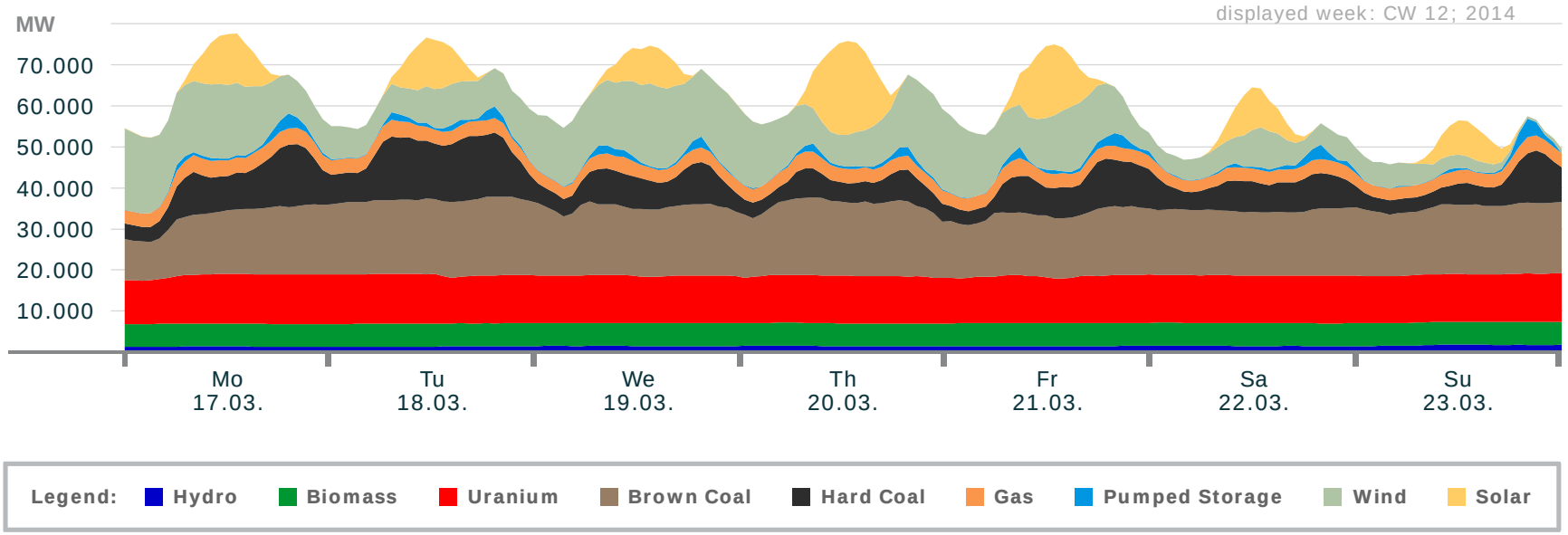
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.0		8.5	7.7	2.1	3.1	0	0.04	0
max. power (GW)	1.4		11.9	19.1	20.4	8.7	4.0	24.8	22.1
weekly energy (TWh)	0.2	1.0	1.9	2.5	2.1	0.7	0.1	1.4	0.8

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 12

Actual production



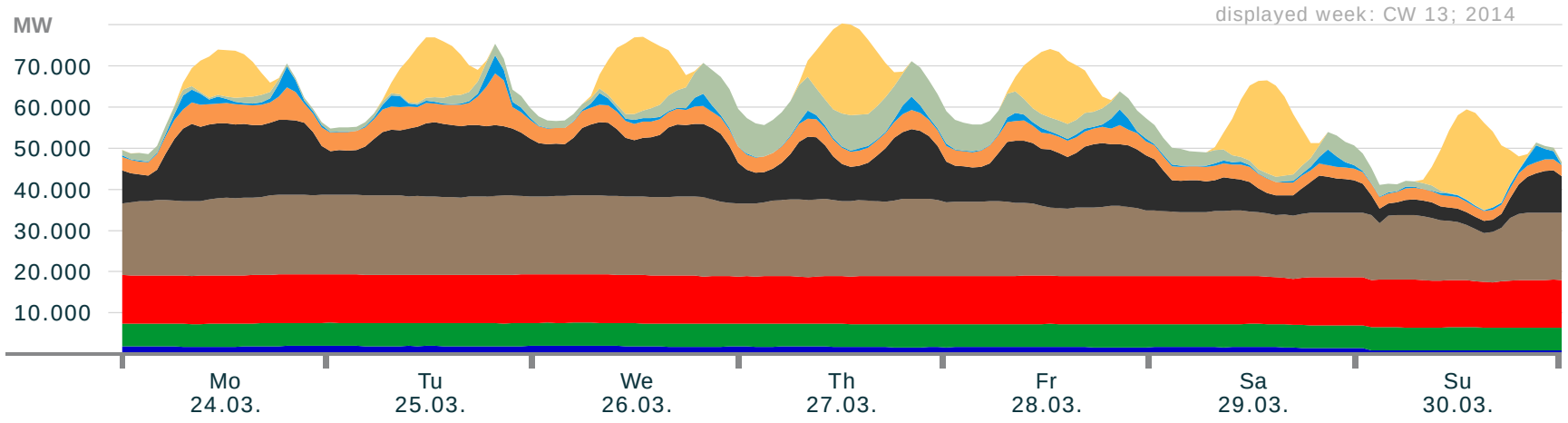
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.2		10.5	9.4	3.3	2.8	0	0.5	0
max. power (GW)	1.8		12.0	19.2	15.6	4.3	4.5	20.5	23.0
weekly energy (TWh)	0.2	0.9	2.0	2.7	1.3	0.6	0.1	1.8	0.6

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 13

Actual production



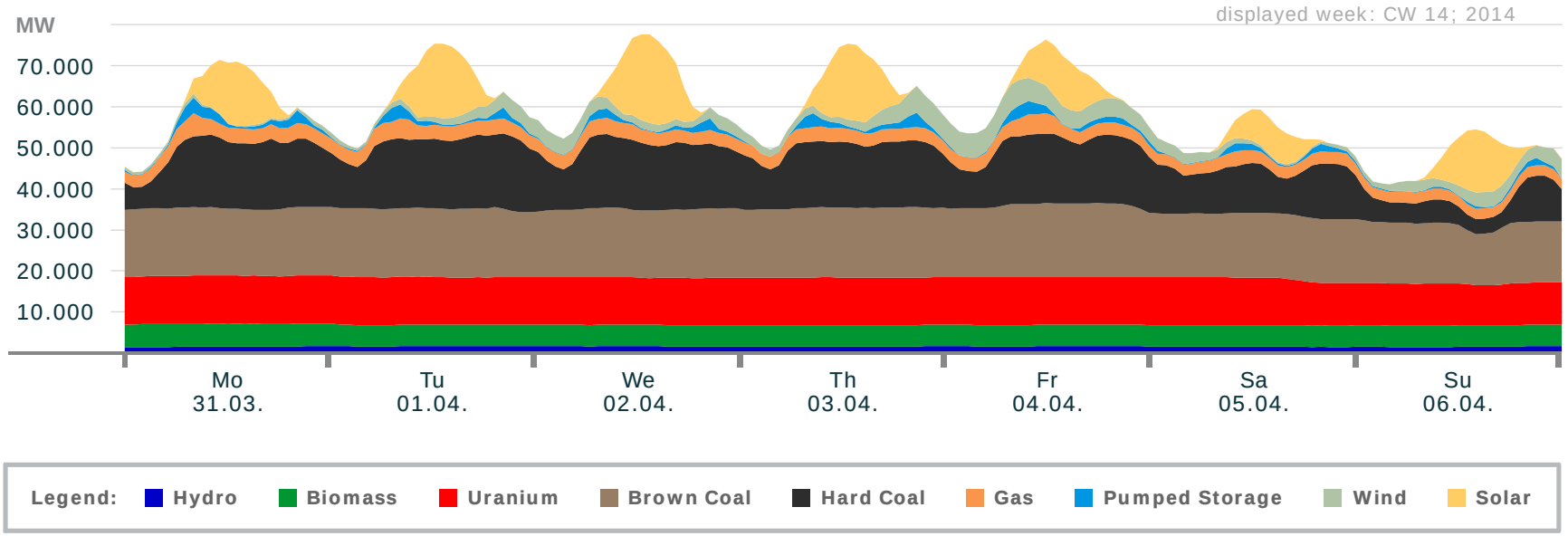
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.8		10.9	11.9	2.9	2.3	0	0.1	0
max. power (GW)	2.0		11.7	19.4	18.8	12.5	5.0	9.6	22.8
weekly energy (TWh)	0.3	0.9	1.9	2.9	2.0	0.7	0.1	0.5	0.9

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 14

Actual production



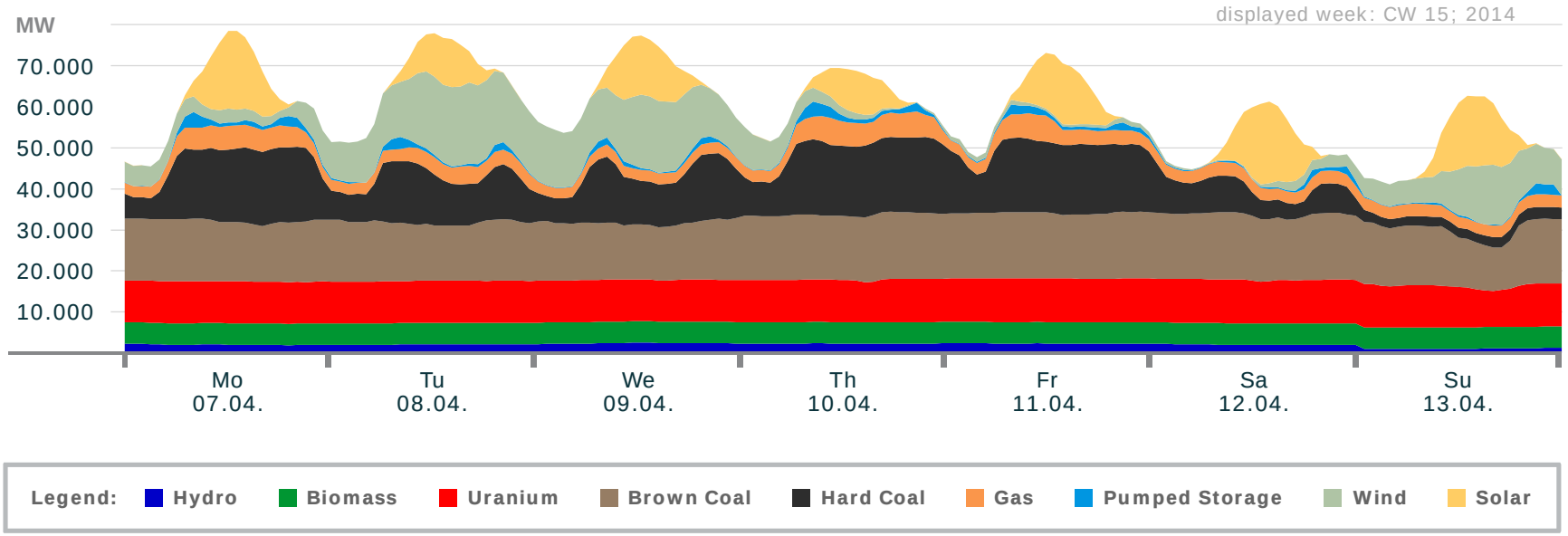
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.4		9.6	12.4	3.6	2.4	0	0	0
max. power (GW)	1.7		11.7	18.0	18.3	5.7	3.8	6.7	21.6
weekly energy (TWh)	0.3	0.9	1.9	2.7	2.2	0.6	0.2	0.4	0.8

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 15

Actual production



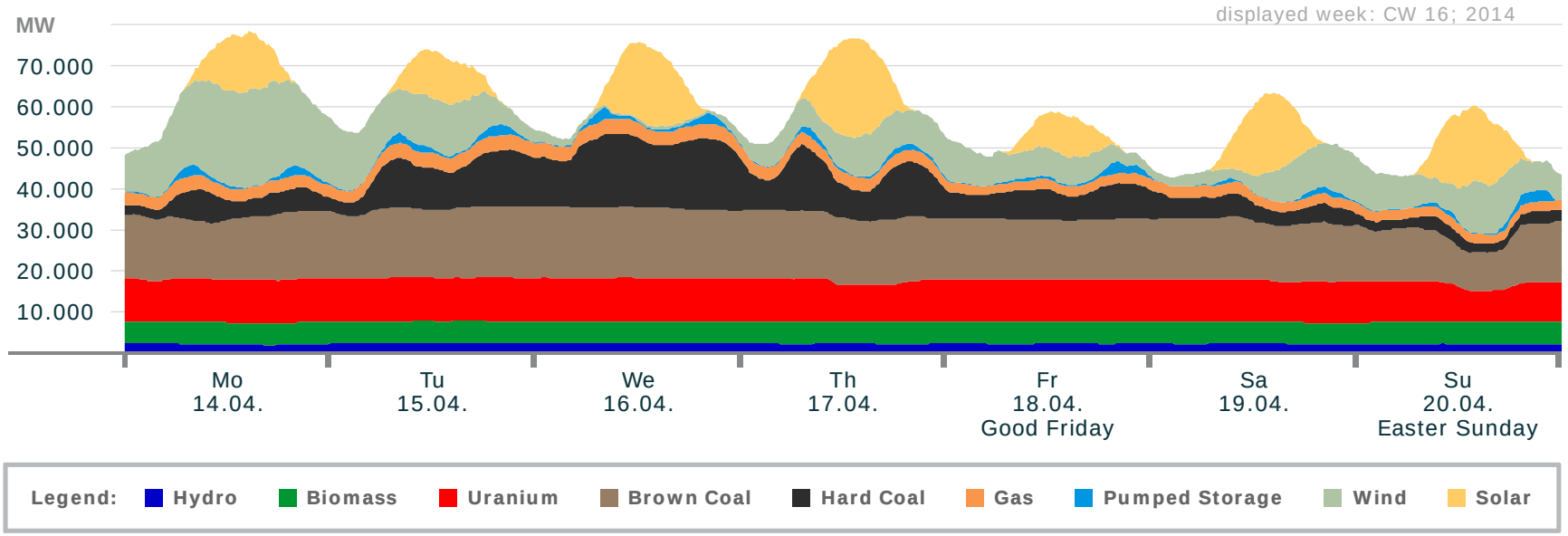
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.0		8.8	10.3	2.2	2.5	0	0.1	0
max. power (GW)	2.5		10.7	16.4	18.5	6.6	3.9	20.2	20.2
weekly energy (TWh)	0.3	0.9	1.7	2.5	1.9	0.6	0.1	1.1	0.8

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 16

Actual production



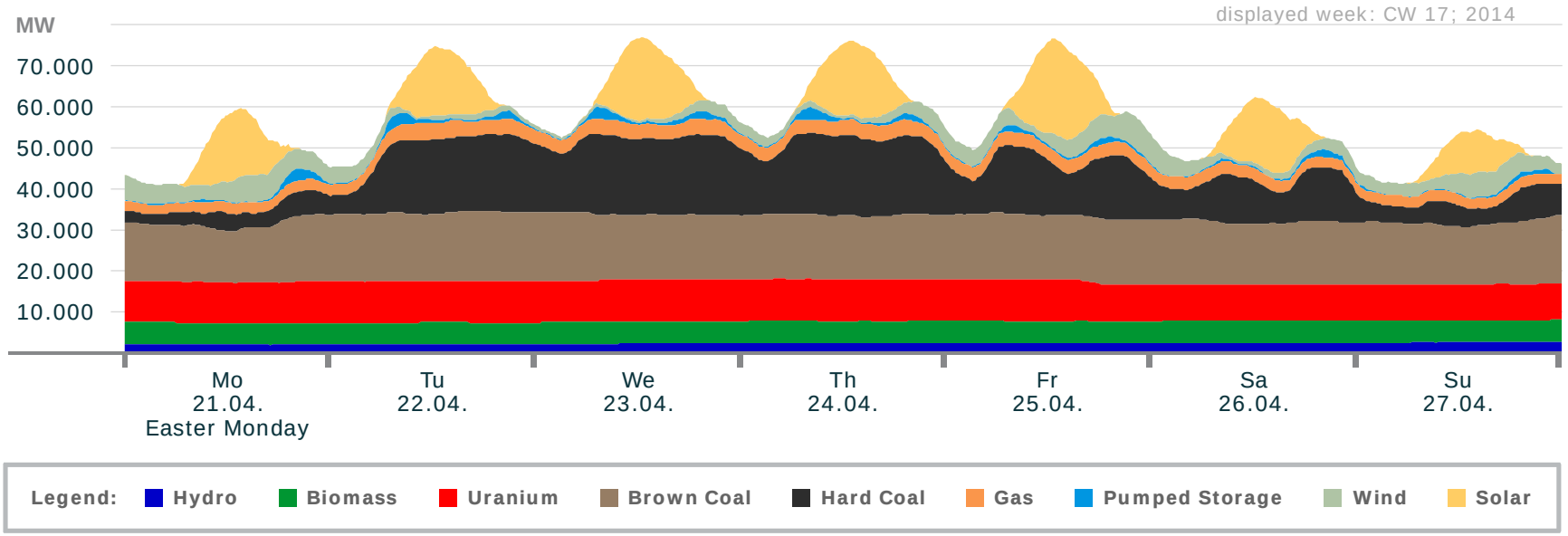
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.96		7.68	9.21	2.21	2.03	0	0.27	0
max. power (GW)	2.44		10.68	17.53	17.79	3.76	2.99	23.9	24.23
weekly energy (TWh)	0.38	0.89	1.72	2.55	1.32	0.49	0.14	1.42	0.91

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 17

Actual production



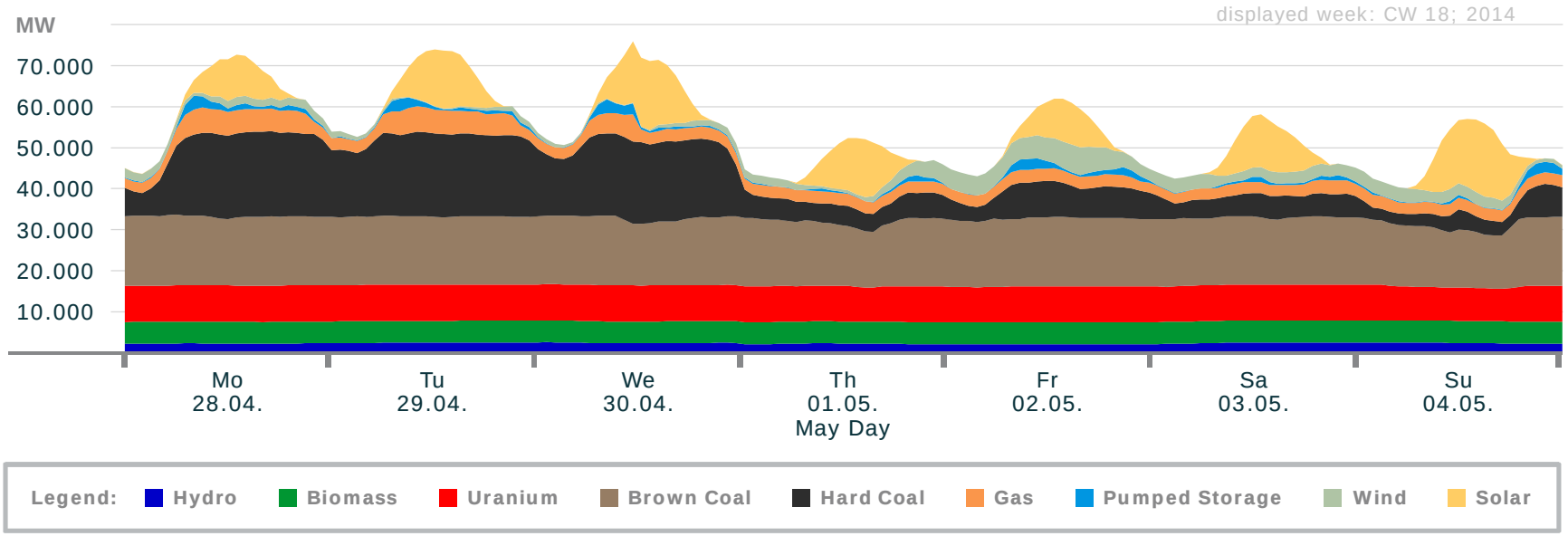
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.97		8.78	12.54	2.54	2.19	0	0.2	0
max. power (GW)	2.75		10.24	17	19.66	4.2	3.34	7.7	23.2
weekly energy (TWh)	0.39	0.89	1.63	2.61	2.0	0.52	0.12	0.5	0.95

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 18

Actual production



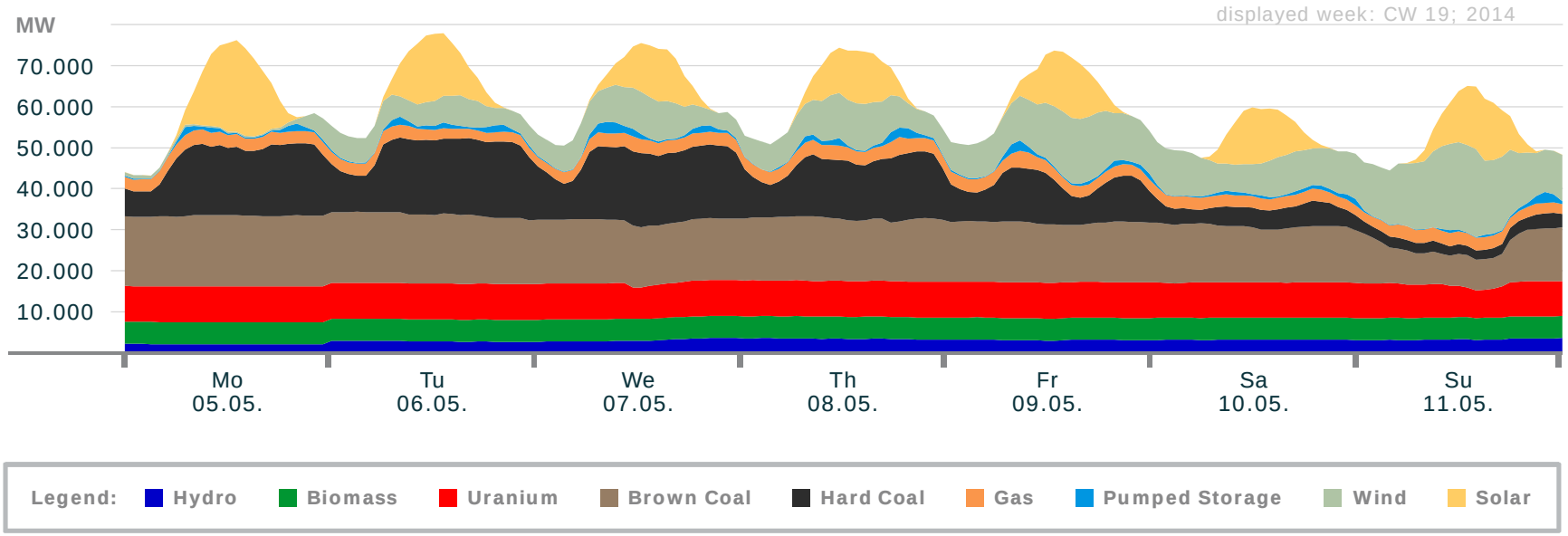
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	2.04		7.98	12.94	2.8	2.34	0.01	0.1	0
max. power (GW)	2.6		8.87	17.28	20.84	6.72	3.37	7.04	17.88
weekly energy (TWh)	0.39	0.9	1.46	2.72	1.82	0.57	0.13	0.37	0.78

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 19

Actual production



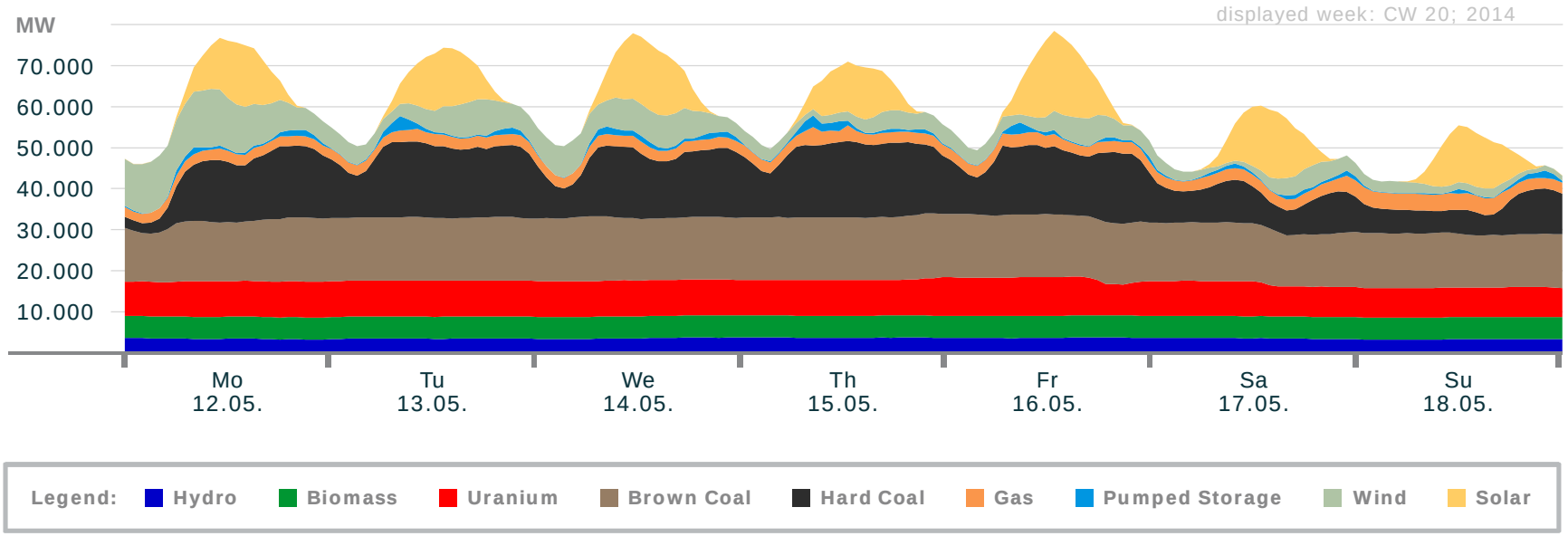
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	2.1		6.69	7.34	2.3	2.26	0.04	0.28	0
max. power (GW)	3.67		8.8	17.33	18.61	4.44	2.75	21.74	22.4
weekly energy (TWh)	0.51	0.9	1.44	2.45	1.84	0.5	0.13	1.41	0.87

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 20

Actual production



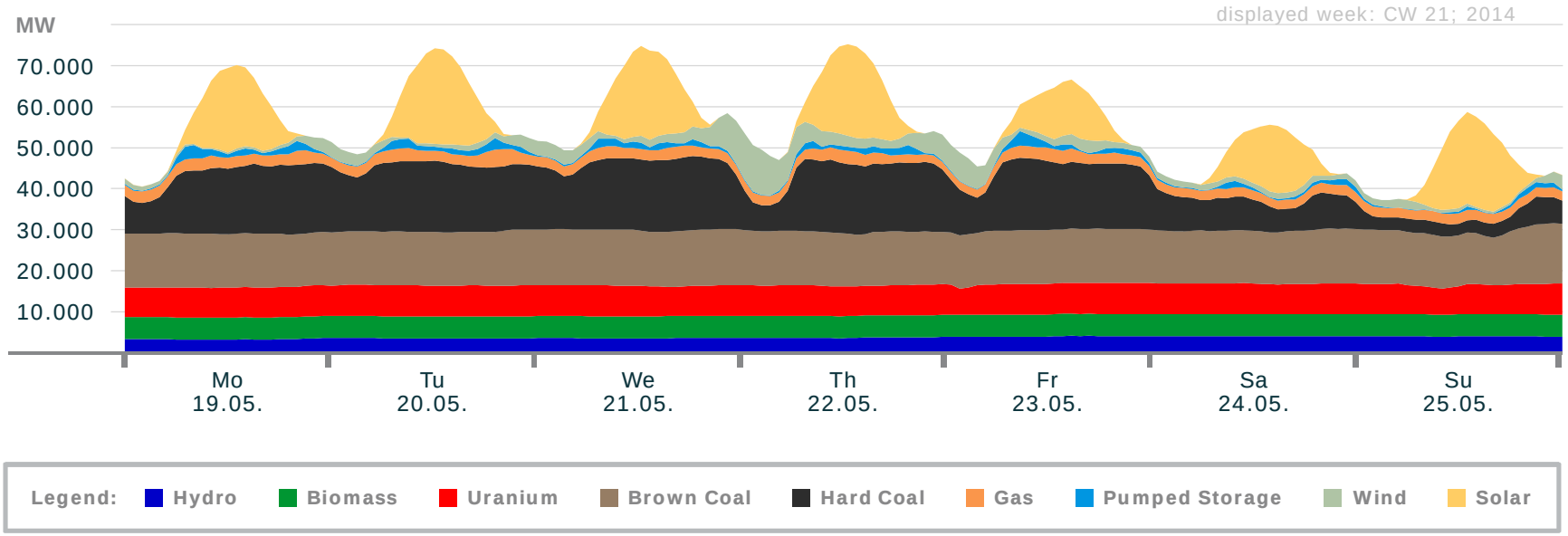
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	3.27		7.13	11.69	2.51	2.24	0.05	0.58	0
max. power (GW)	3.82		9.54	15.88	18.6	4.55	3.53	14.72	19.62
weekly energy (TWh)	0.6	0.9	1.42	2.45	2.14	0.48	0.12	0.84	0.92

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 21

Actual production



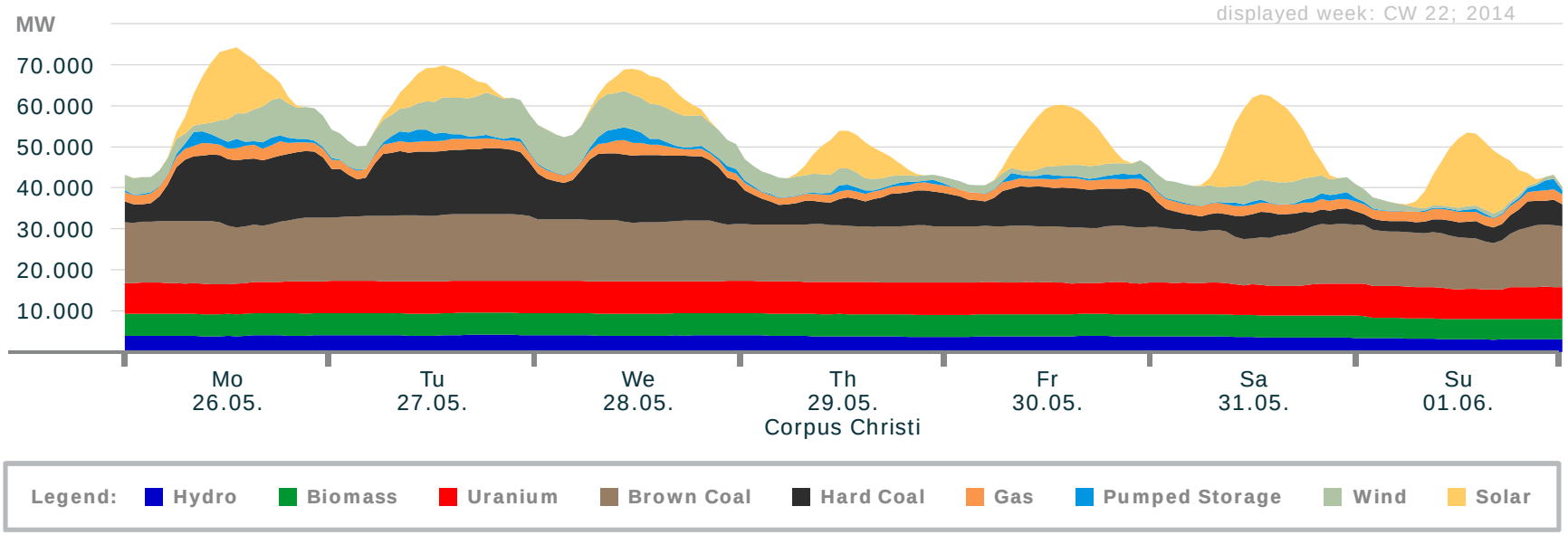
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	3.2		6.32	11.51	2.83	1.81	0.06	0.29	0
max. power (GW)	4.17		7.57	14.69	18.03	4.3	3.46	11.86	23.51
weekly energy (TWh)	0.63	0.9	1.24	2.21	2.11	0.43	0.16	0.39	1.19

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 22

Actual production



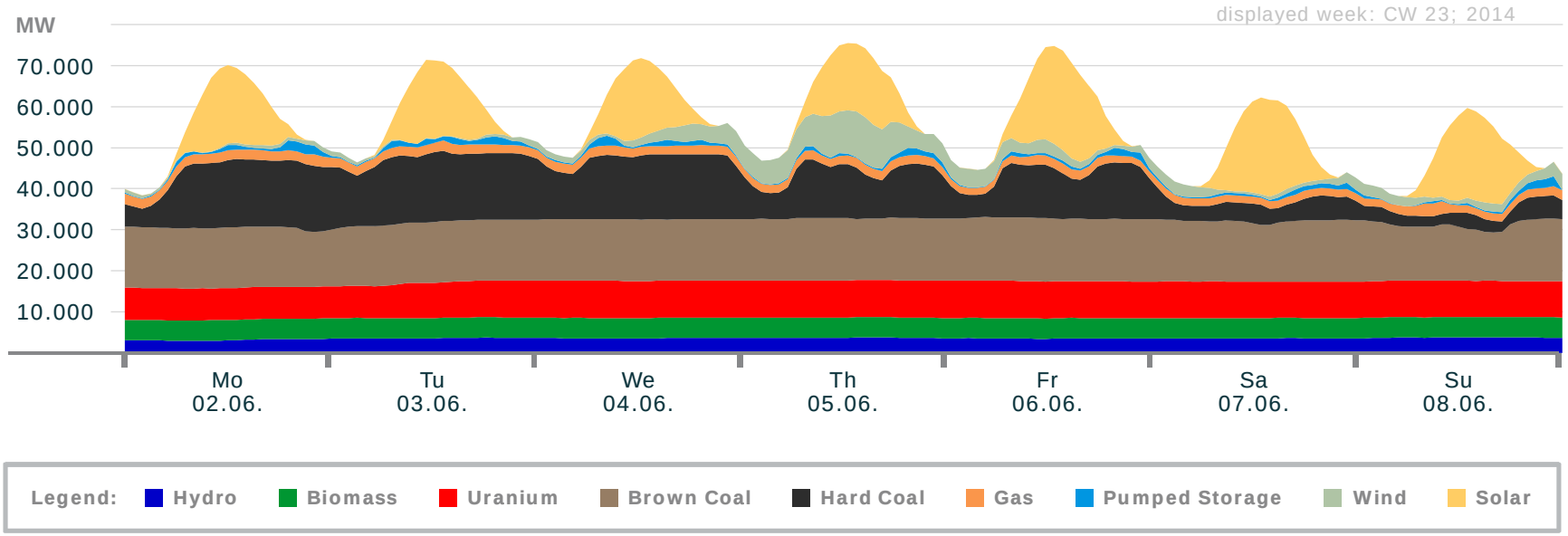
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	3.02		7.14	11.21	2.51	1.62	0.04	0.49	0
max. power (GW)	4.19		7.88	16.25	16.43	3.53	3.39	10.45	20.94
weekly energy (TWh)	0.64	0.89	1.3	2.38	1.57	0.38	0.14	0.79	0.83

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 23

Actual production



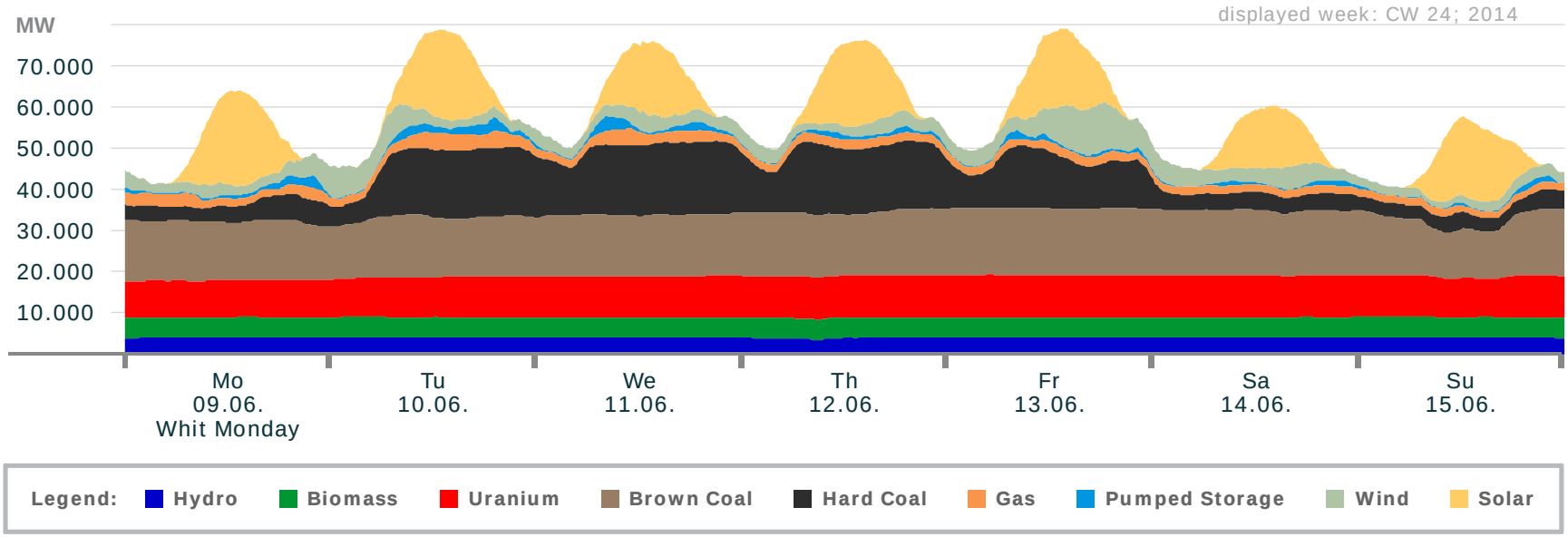
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	2.95		7.71	11.75	2.49	1.58	0	0.08	0
max. power (GW)	3.84		9.12	15.49	17.13	3.2	2.53	11.82	24.24
weekly energy (TWh)	0.6	0.83	1.47	2.47	1.78	0.35	0.13	0.42	1.26

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 24

Actual production



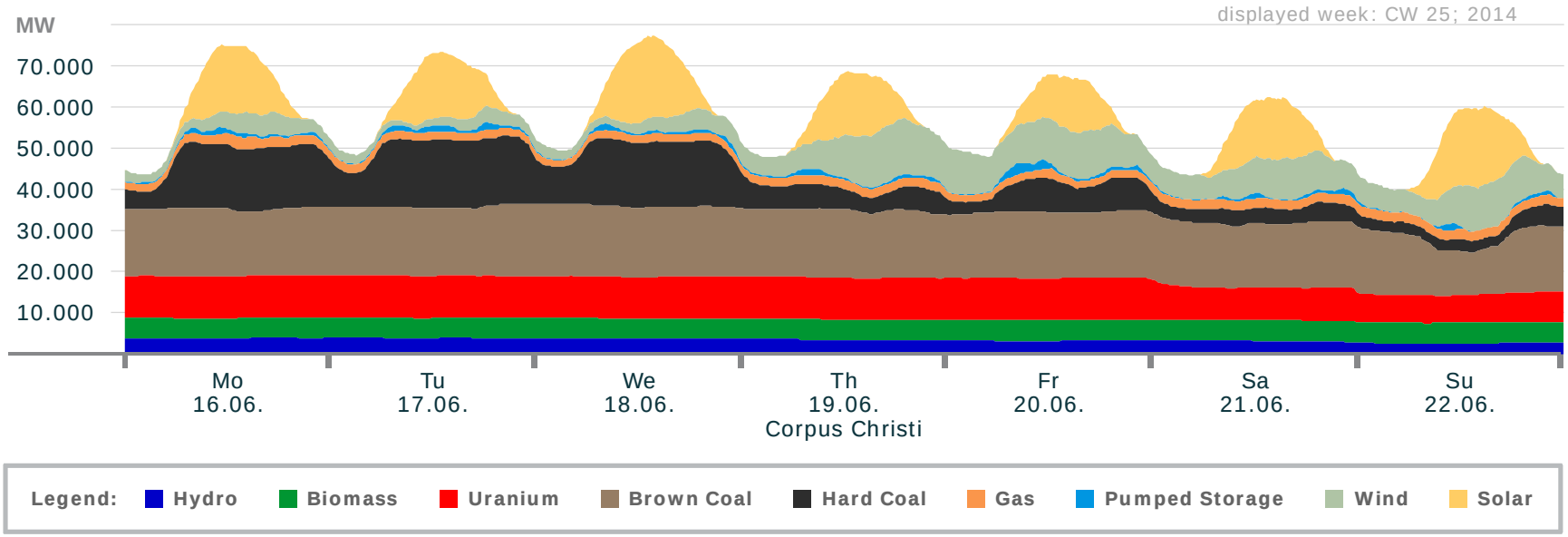
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	3.29		8.72	11.14	3.15	1.5	0	0.96	0
max. power (GW)	4.05		10.21	16.32	17.79	4.26	3.61	11.95	23.11
weekly energy (TWh)	0.66	0.83	1.66	2.51	1.65	0.38	0.14	0.59	1.2

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 25

Actual production



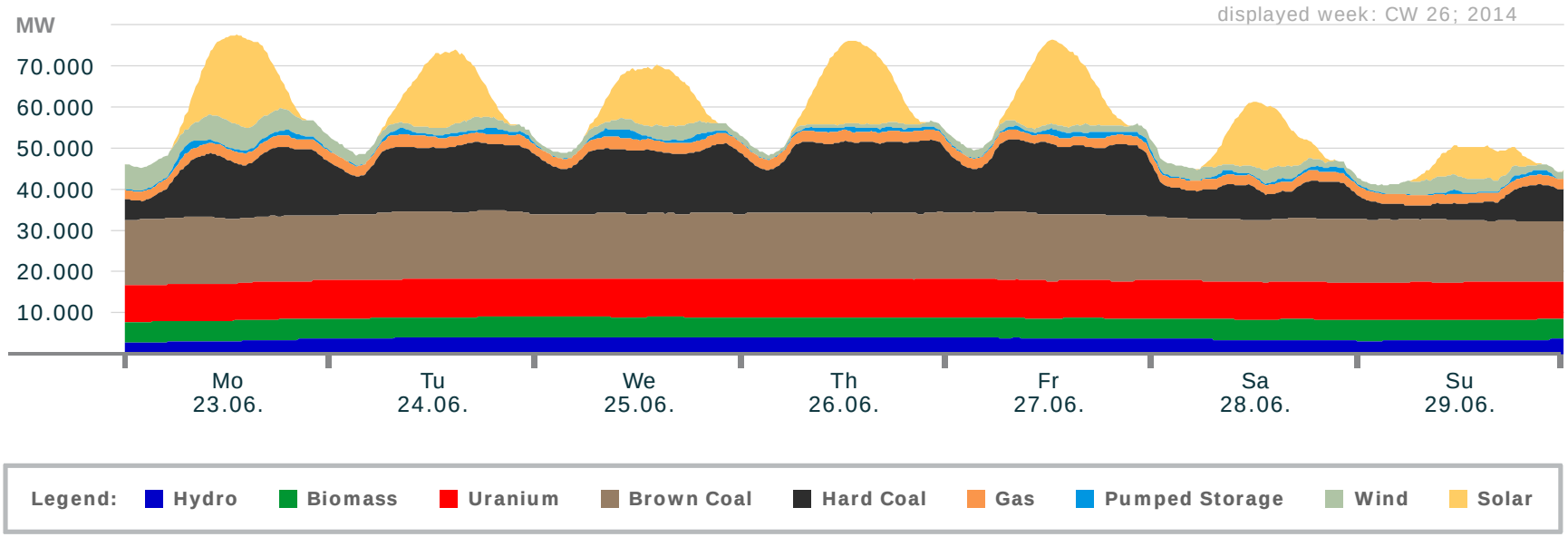
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	2.47		6.55	10.26	2.43	1.56	0	0.7	0
max. power (GW)	3.93		10.21	17.5	16.63	2.97	2.92	13.68	20.0
weekly energy (TWh)	0.56	0.83	1.59	2.7	1.44	0.35	0.11	1.01	1.06

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 26

Actual production



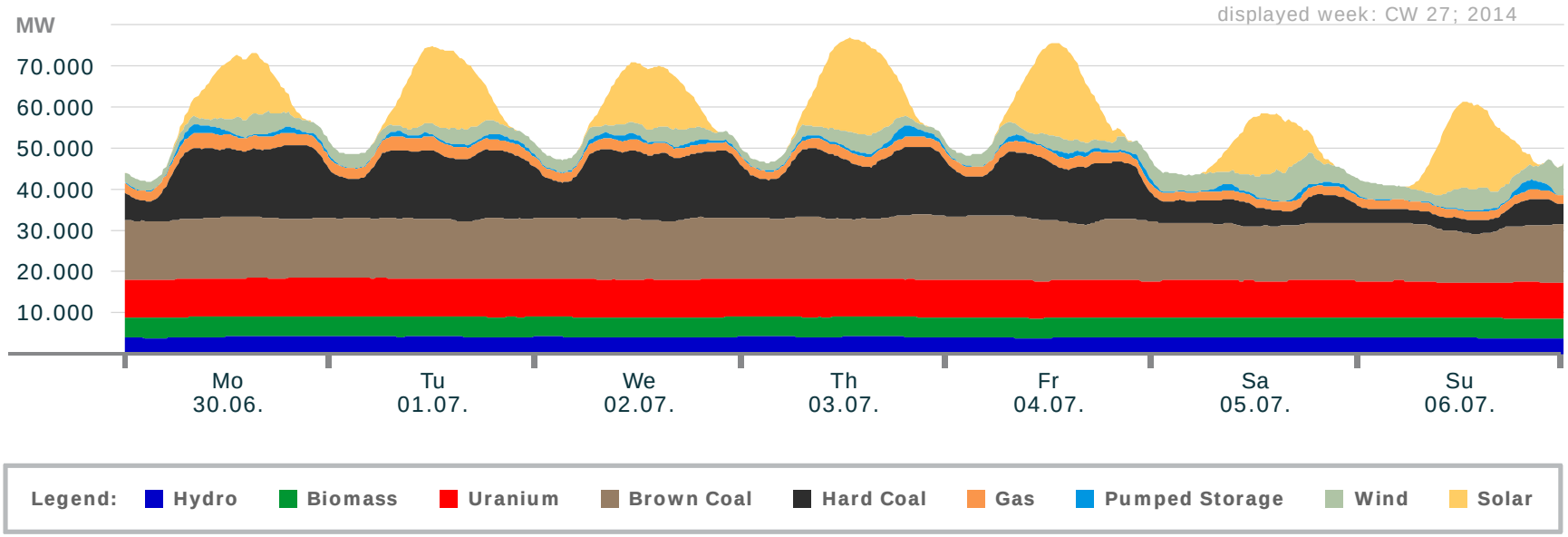
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	2.76		8.79	14.49	3.3	1.85	0	0.35	0
max. power (GW)	4.05		9.21	16.79	17.71	2.91	2.21	6.46	21.95
weekly energy (TWh)	0.61	0.83	1.54	2.66	2.07	0.42	0.12	0.37	1.03

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 27

Actual production



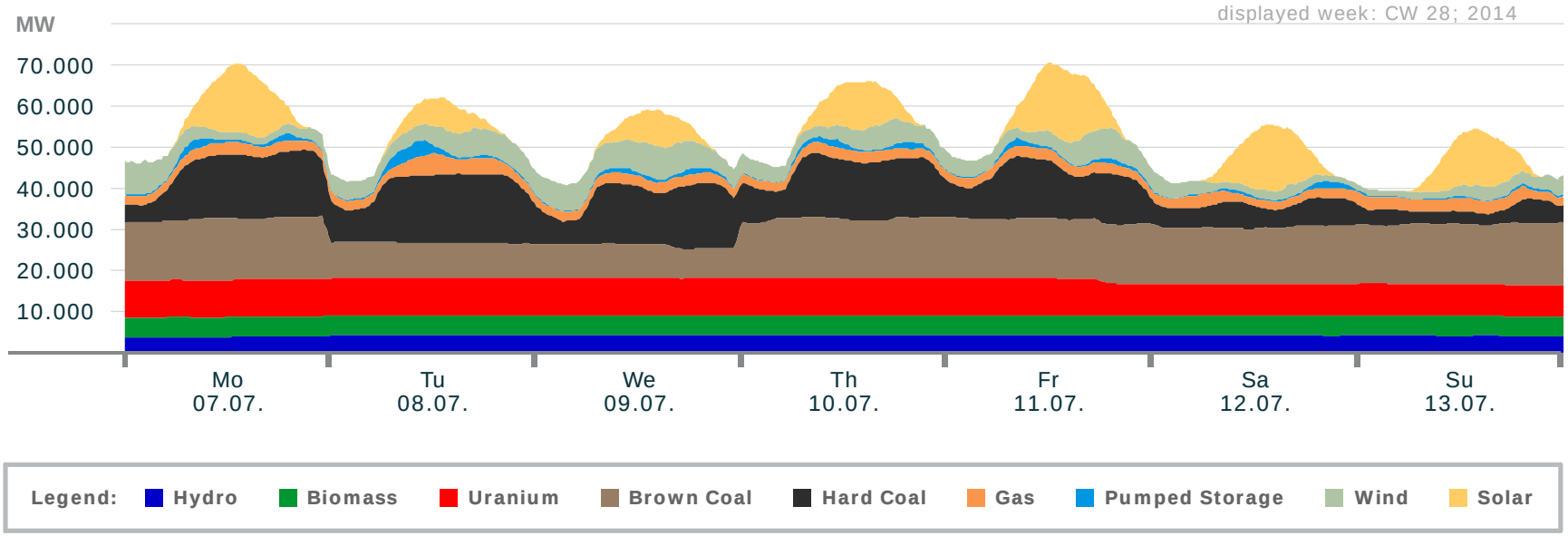
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	3.62		8.46	11.96	3.06	1.98	0	0.88	0
max. power (GW)	4.22		9.19	15.97	17.86	3.71	2.94	7.99	23
weekly energy (TWh)	0.66	0.82	1.53	2.43	1.9	0.42	0.12	0.52	1.14

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 28

Actual production



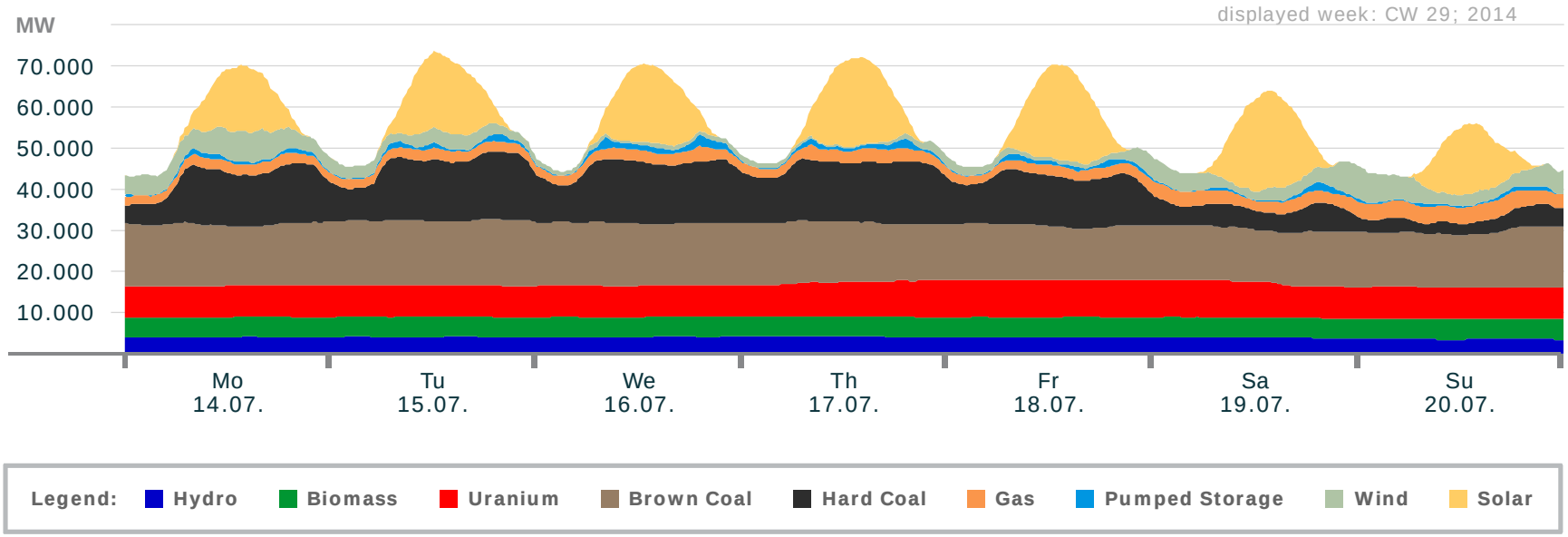
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	3.61		7.46	7.09	2.83	1.9	0.11	0.95	0
max. power (GW)	4.33		9.03	15.32	16.82	5.35	3.95	8.12	17.42
weekly energy (TWh)	0.69	0.82	1.44	2.13	1.73	0.44	0.13	0.64	0.77

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 29

Actual production



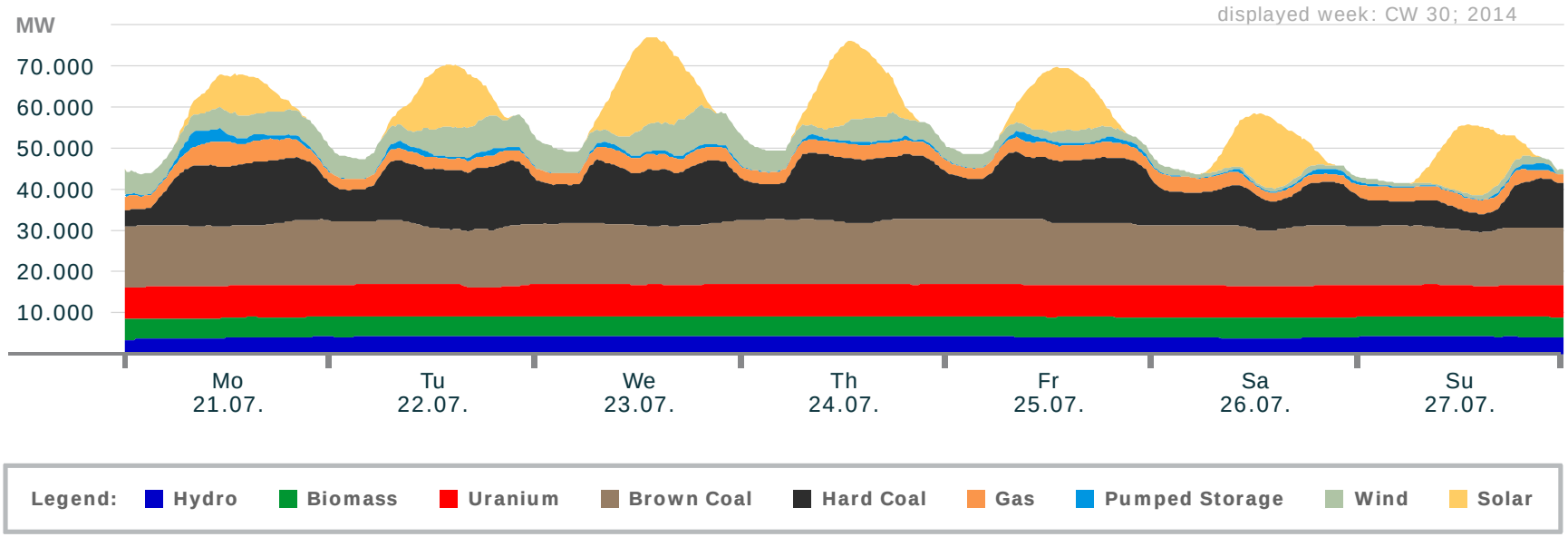
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	3.45		7.36	12.39	2.41	1.98	0	0.02	0
max. power (GW)	4.16		8.93	16.13	16.44	4.37	3.0	7.92	23.62
weekly energy (TWh)	0.66	0.82	1.35	2.41	1.74	0.47	0.13	0.44	1.2

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 30

Actual production



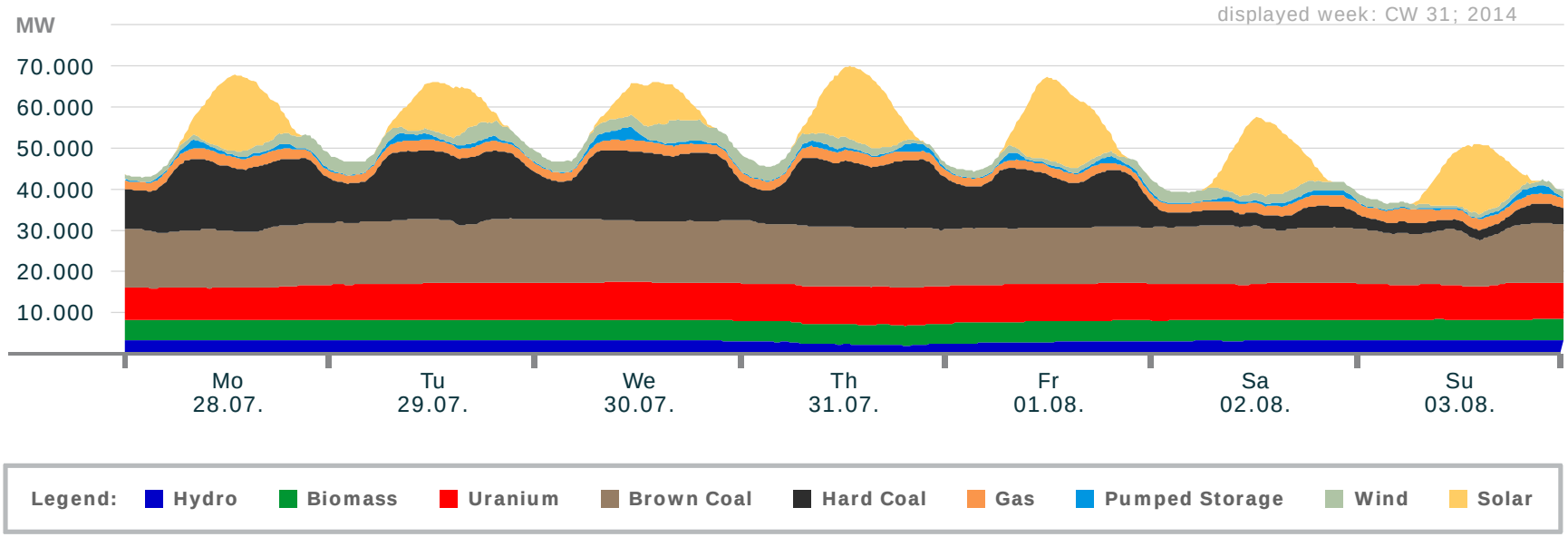
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	3.47		6.85	13.03	3.89	1.86	0	0.24	0
max. power (GW)	4.27		7.81	16	16.22	6.09	3.79	9.54	21.34
weekly energy (TWh)	0.68	0.82	1.3	2.49	1.96	0.55	0.12	0.6	0.96

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 31

Actual production



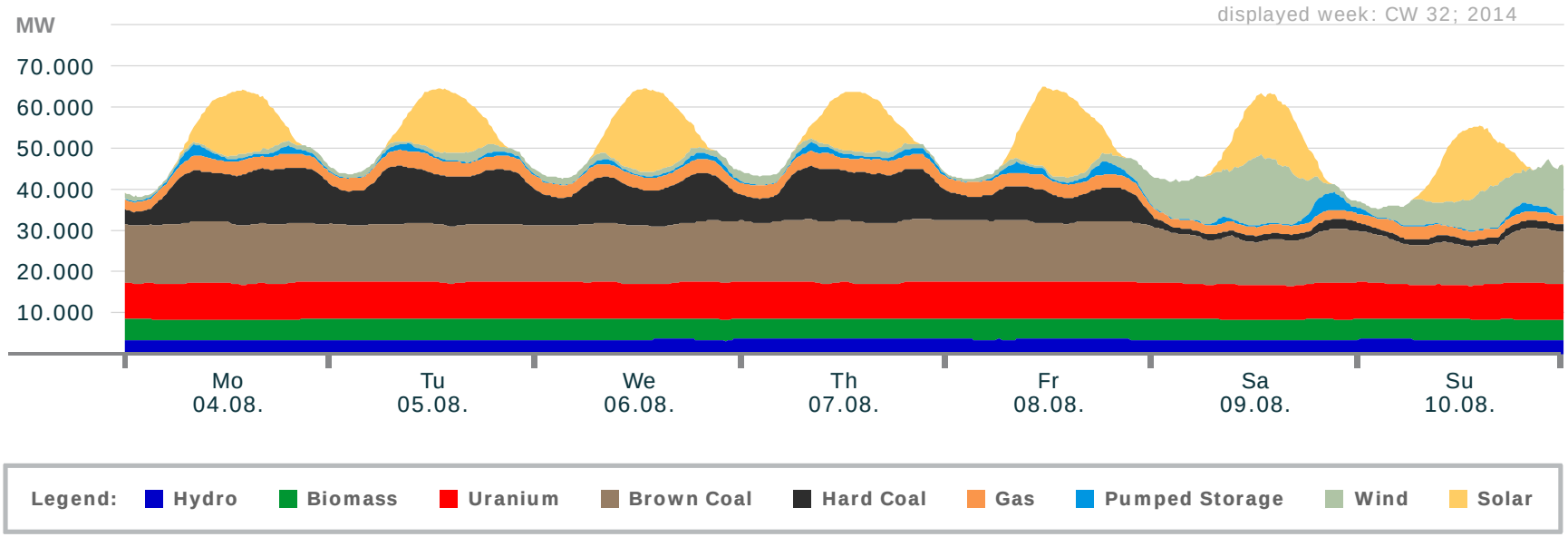
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.9		7.67	11.44	2.3	1.52	0.06	0.21	0
max. power (GW)	3.41		9.15	15.63	17.2	3.37	3.24	5.23	20.17
weekly energy (TWh)	0.52	0.83	1.48	2.39	1.83	0.4	0.12	0.3	0.93

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 32

Actual production



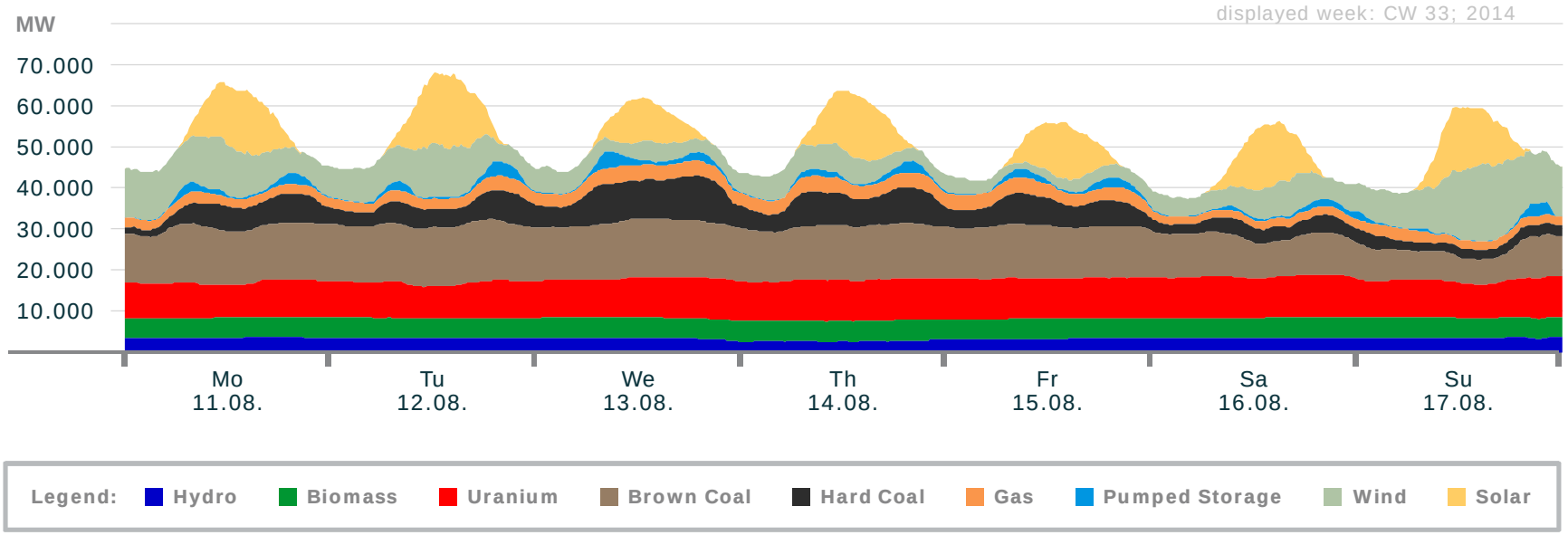
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	3.13		8.05	9.41	1.32	2.02	0	0.13	0
max. power (GW)	3.59		9.1	15.02	14.23	4.15	4.36	16.84	21.08
weekly energy (TWh)	0.58	0.83	1.49	2.27	1.26	0.5	0.14	0.51	0.98

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 33

Actual production



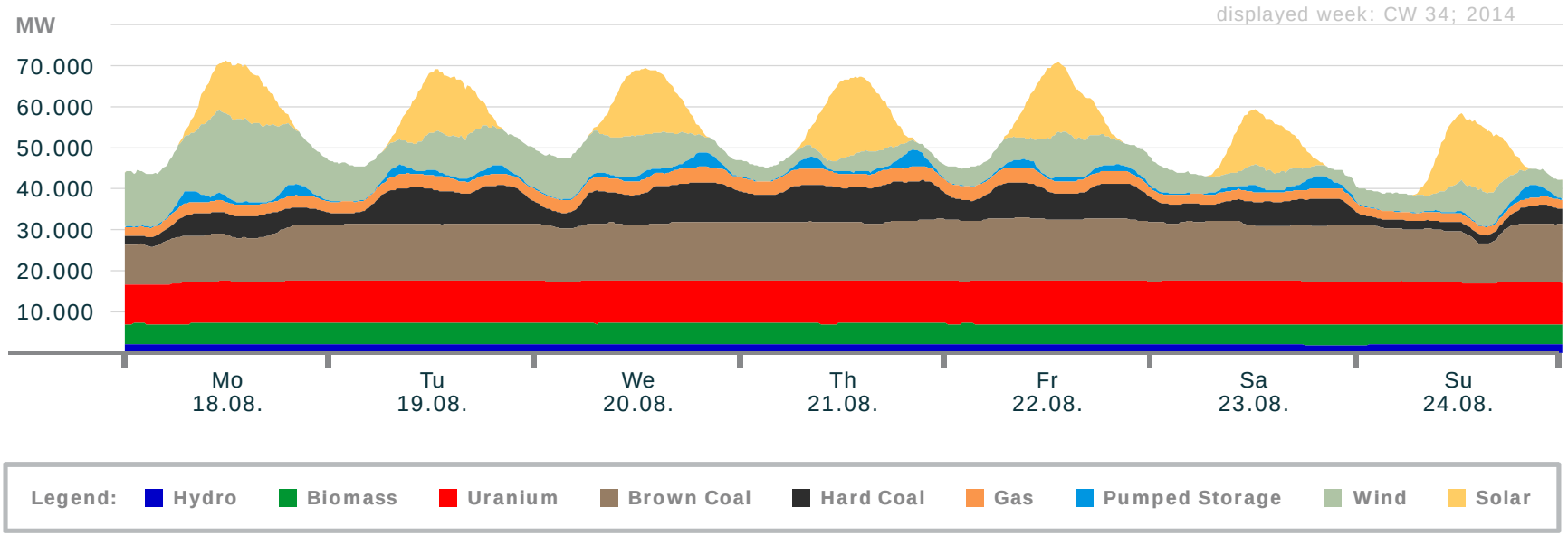
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	2.42		7.53	6.09	1.72	1.8	0	0.83	0
max. power (GW)	3.57		10.38	14.91	10.85	4.32	4.19	18.81	17.81
weekly energy (TWh)	0.54	0.83	1.58	2.02	0.89	0.47	0.17	1.13	0.83

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 34

Actual production



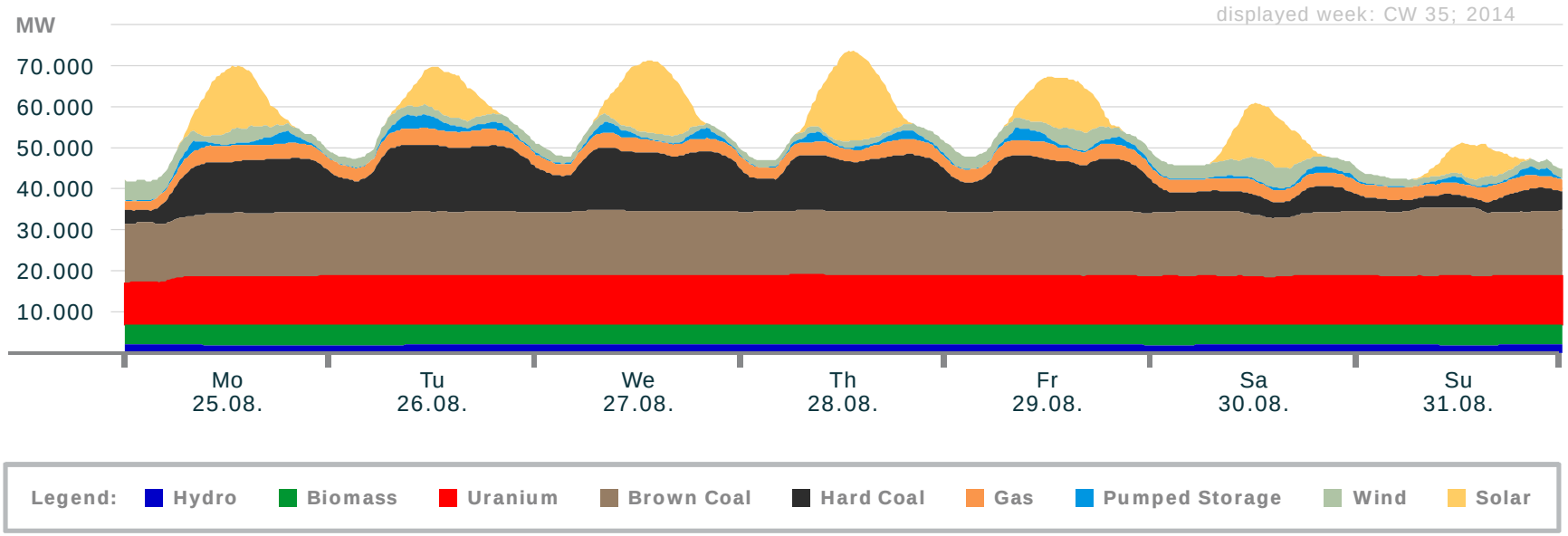
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.9		9.33	9.1	1.96	1.96	0.03	1.16	0
max. power (GW)	2.21		10.48	15.34	9.71	4.1	4.31	19.98	19.09
weekly energy (TWh)	0.36	0.83	1.74	2.29	1.01	0.48	0.17	1.18	0.89

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 35

Actual production



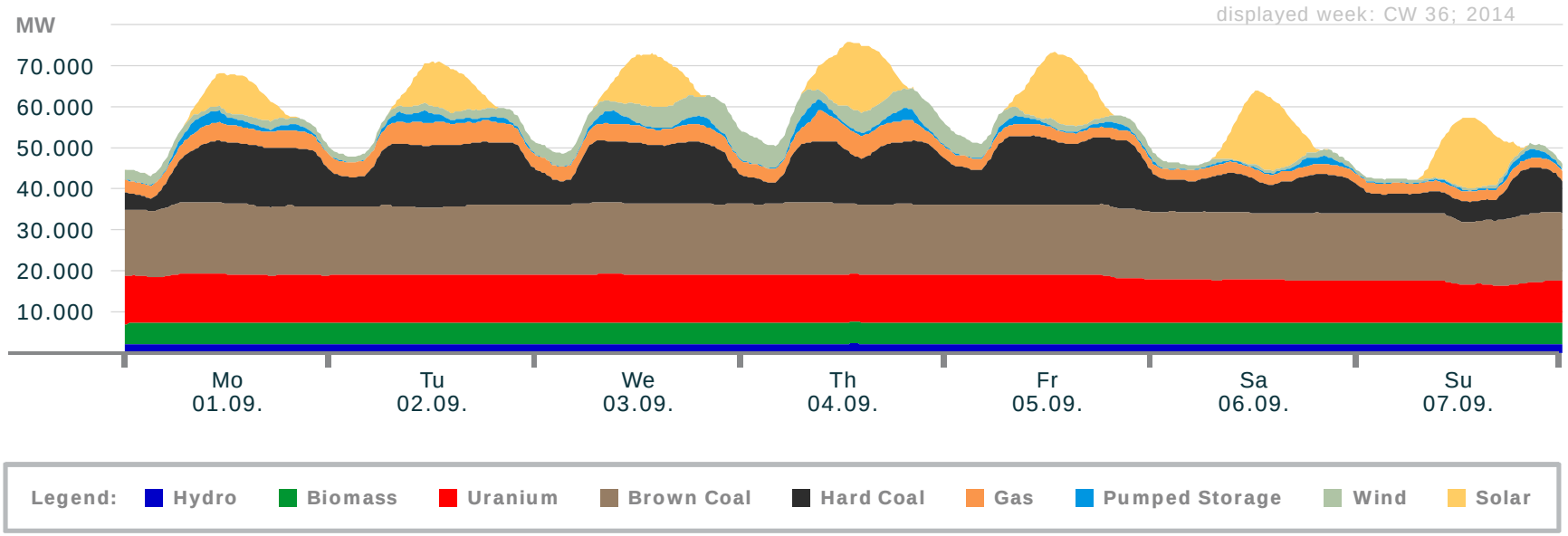
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.86		10.01	14.19	2.23	2.13	0.07	0.45	0
max. power (GW)	2.06		11.88	16.88	16.29	4.1	3.49	5.9	21.96
weekly energy (TWh)	0.34	0.83	1.97	2.62	1.65	0.55	0.16	0.36	0.76

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 36

Actual production



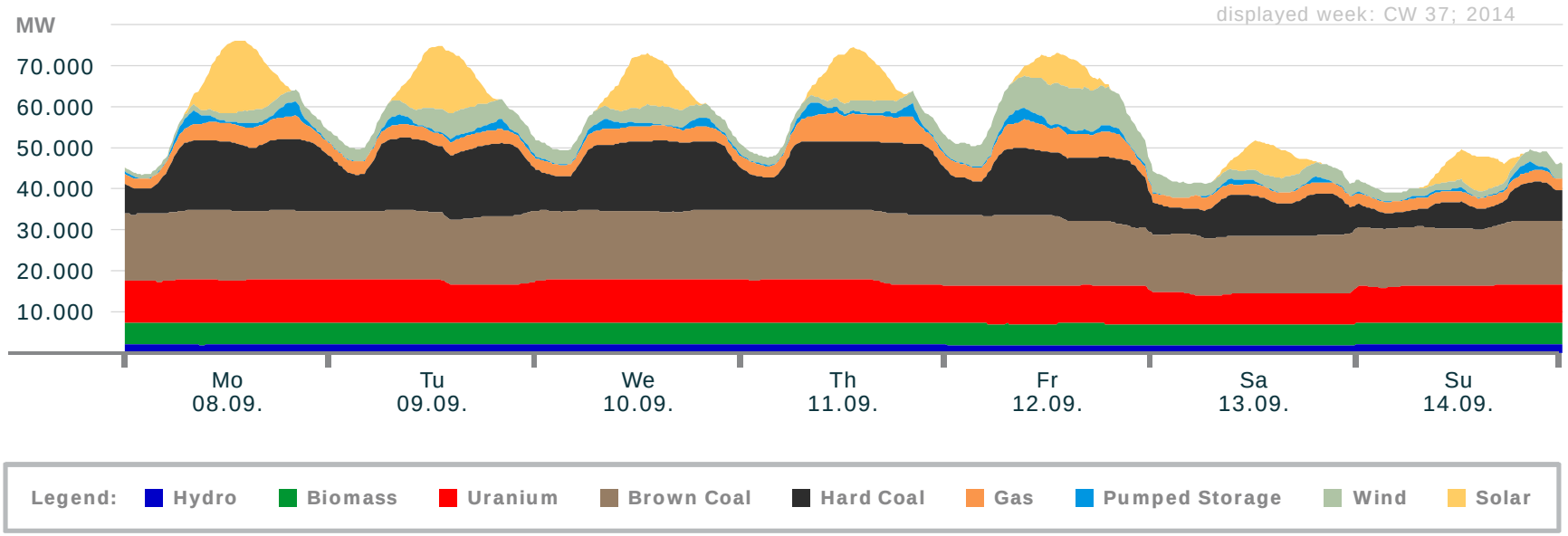
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.99		9.05	15.01	3.23	2.3	0.05	0.08	0
max. power (GW)	2.4		11.8	17.56	16.76	7.63	3.72	7.33	18.44
weekly energy (TWh)	0.36	0.87	1.9	2.82	1.87	0.59	0.16	0.38	0.75

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 37

Actual production



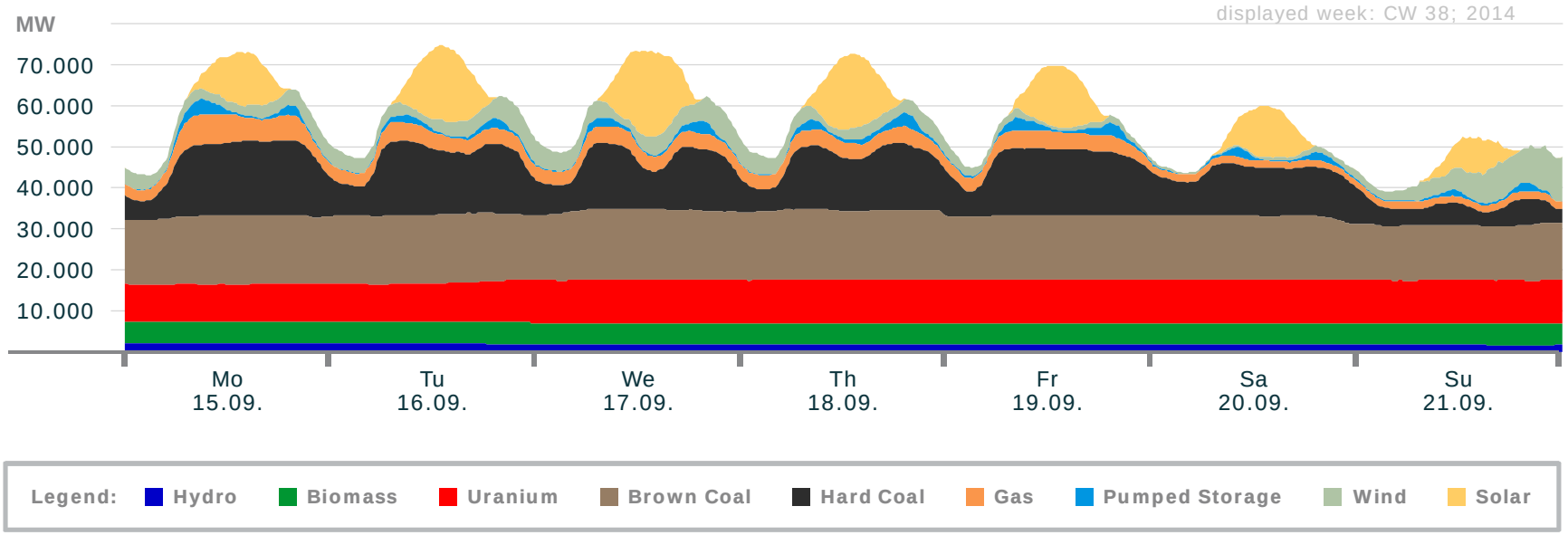
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.69		6.94	13.65	3.69	2.32	0	0.66	0
max. power (GW)	2.16		10.54	17.28	17.73	7.12	3.39	10.46	17.42
weekly energy (TWh)	0.33	0.87	1.62	2.69	2.08	0.62	0.15	0.59	0.58

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 38

Actual production



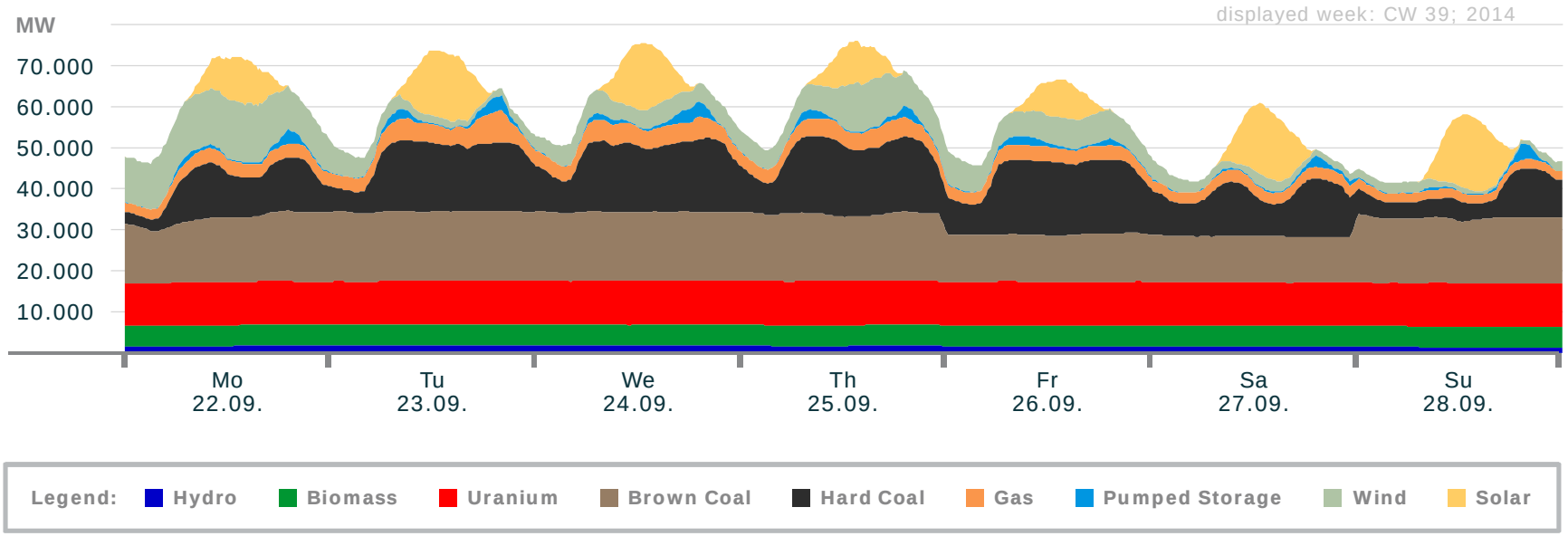
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.65		8.98	13.09	3.39	1.5	0	0.14	0
max. power (GW)	2.07		10.56	17.25	18.3	7.4	3.99	10.73	20.81
weekly energy (TWh)	0.32	0.87	1.72	2.68	1.98	0.56	0.17	0.53	0.73

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 39

Actual production



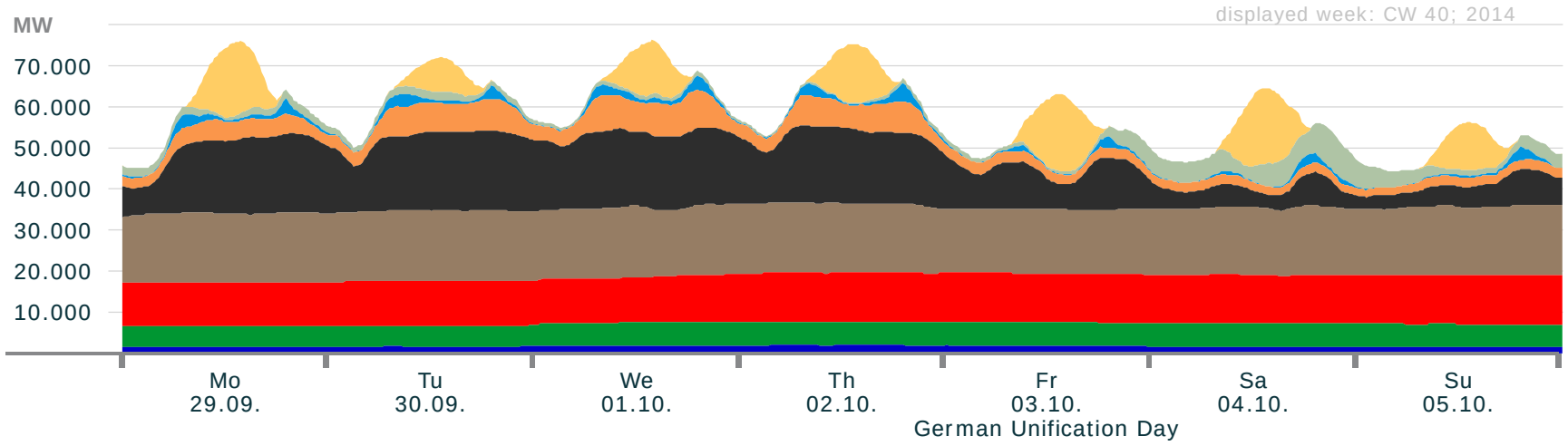
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.31		10.04	10.97	2.65	2.03	0	0.4	0
max. power (GW)	1.86		10.67	17.19	18.84	7.93	3.98	14.57	18.18
weekly energy (TWh)	0.27	0.86	1.78	2.49	2.04	0.59	0.13	0.89	0.66

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 40

Actual production



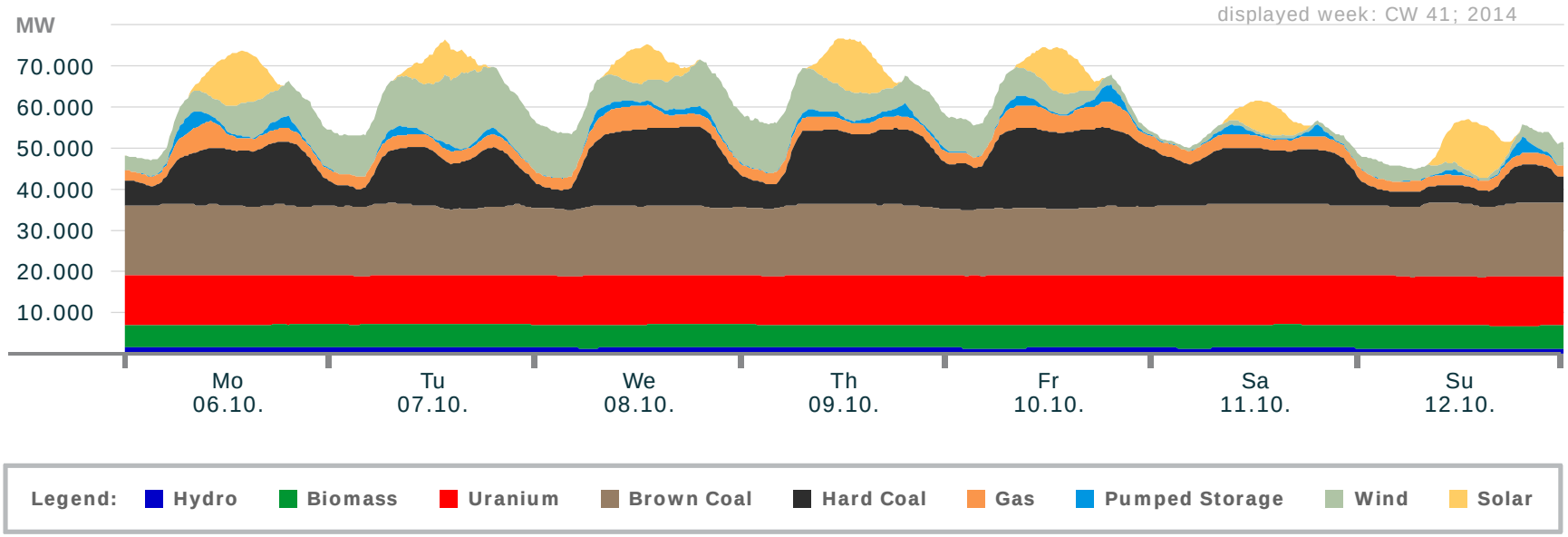
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.41		10.4	15.43	2.93	1.75	0	0.06	0
max. power (GW)	2.03		11.93	17.37	19.42	9.6	4.58	9.31	18.69
weekly energy (TWh)	0.28	0.92	1.93	2.79	2.11	0.69	0.15	0.32	0.65

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 41

Actual production



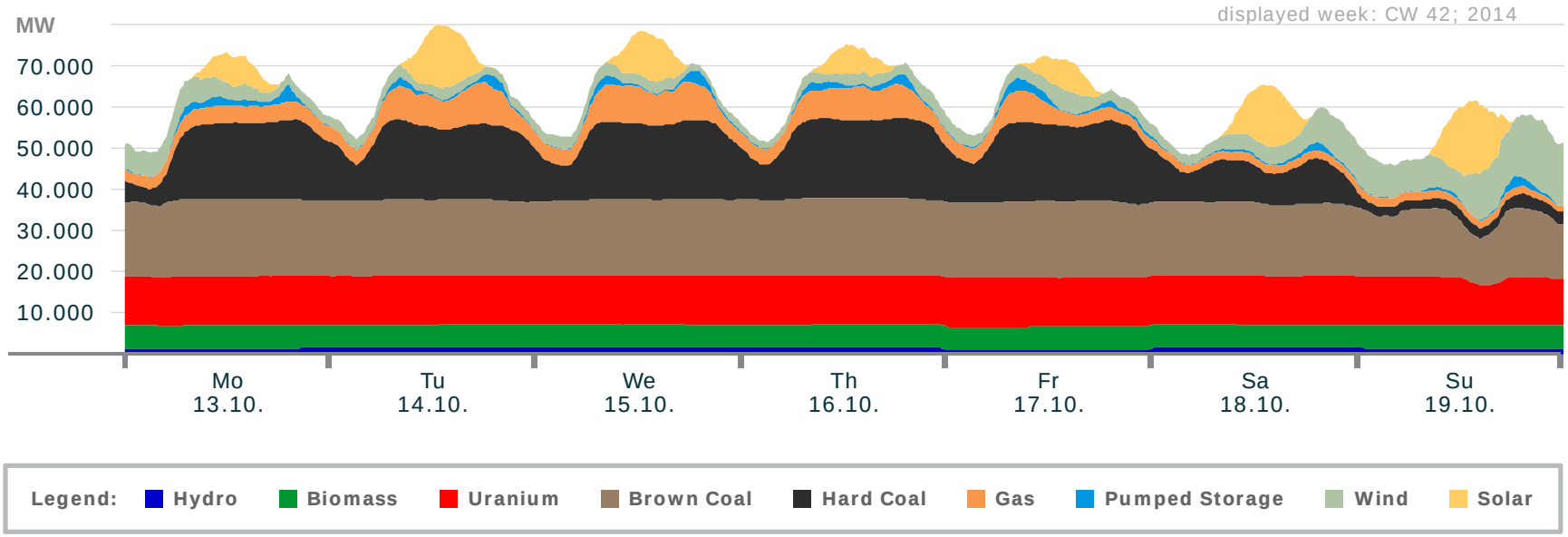
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.15		11.52	15.75	3.61	2.3	0	0.47	0
max. power (GW)	1.54		11.96	17.93	19.54	6.56	4.21	18.73	13.09
weekly energy (TWh)	0.24	0.95	2.01	2.84	2.04	0.56	0.15	1.08	0.45

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 42

Actual production



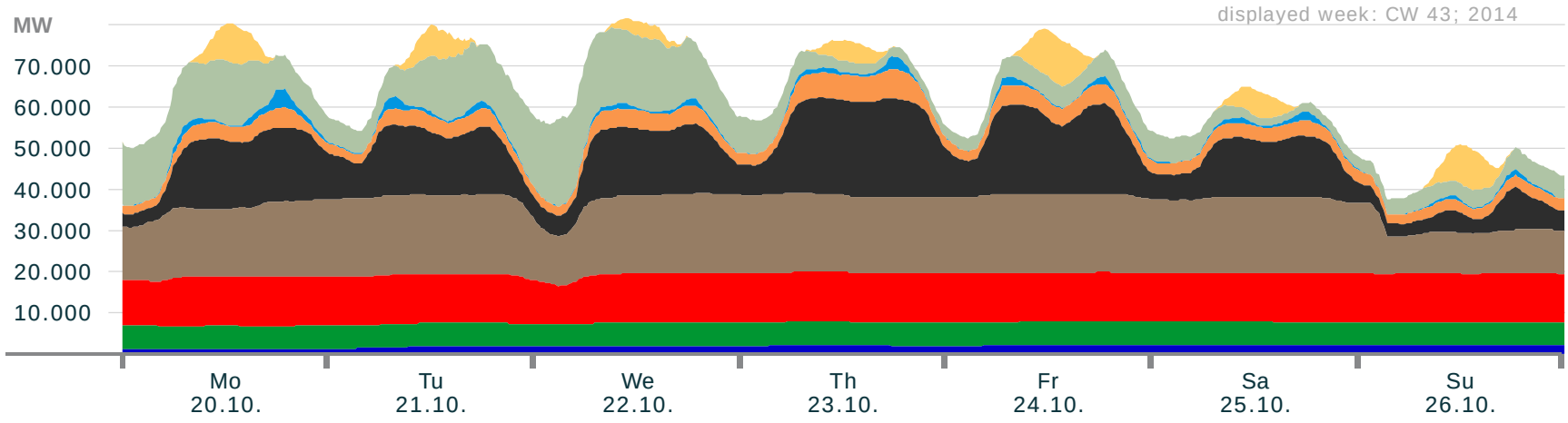
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.81		9.63	11.27	2.31	1.29	0	1.21	0
max. power (GW)	1.55		11.97	18.74	19.64	10.06	4.24	17.65	17.69
weekly energy (TWh)	0.22	0.95	2.0	2.99	2.21	0.74	0.14	0.71	0.48

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 43

Actual production



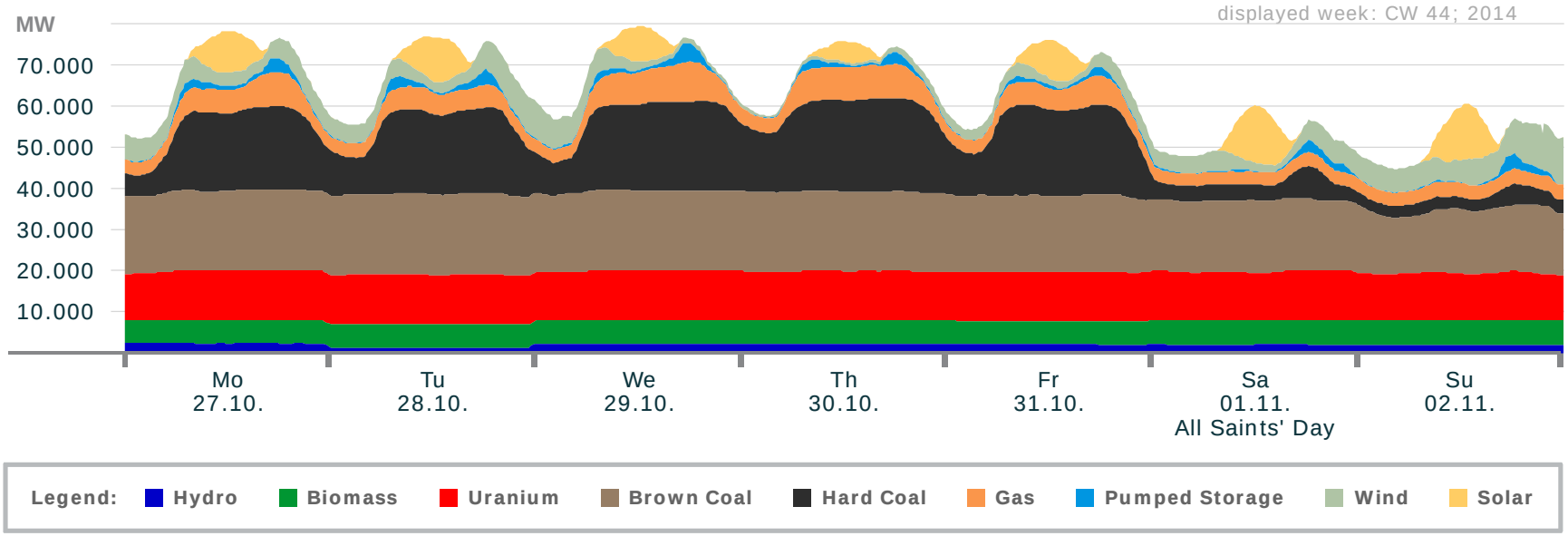
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.14		9.07	8.76	3.13	1.96	0	1.6	0
max. power (GW)	2.19		12.02	19.4	23.91	7.12	4.62	21.46	11.54
weekly energy (TWh)	0.31	0.96	2.01	2.88	2.2	0.6	0.13	1.35	0.3

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 44

Actual production



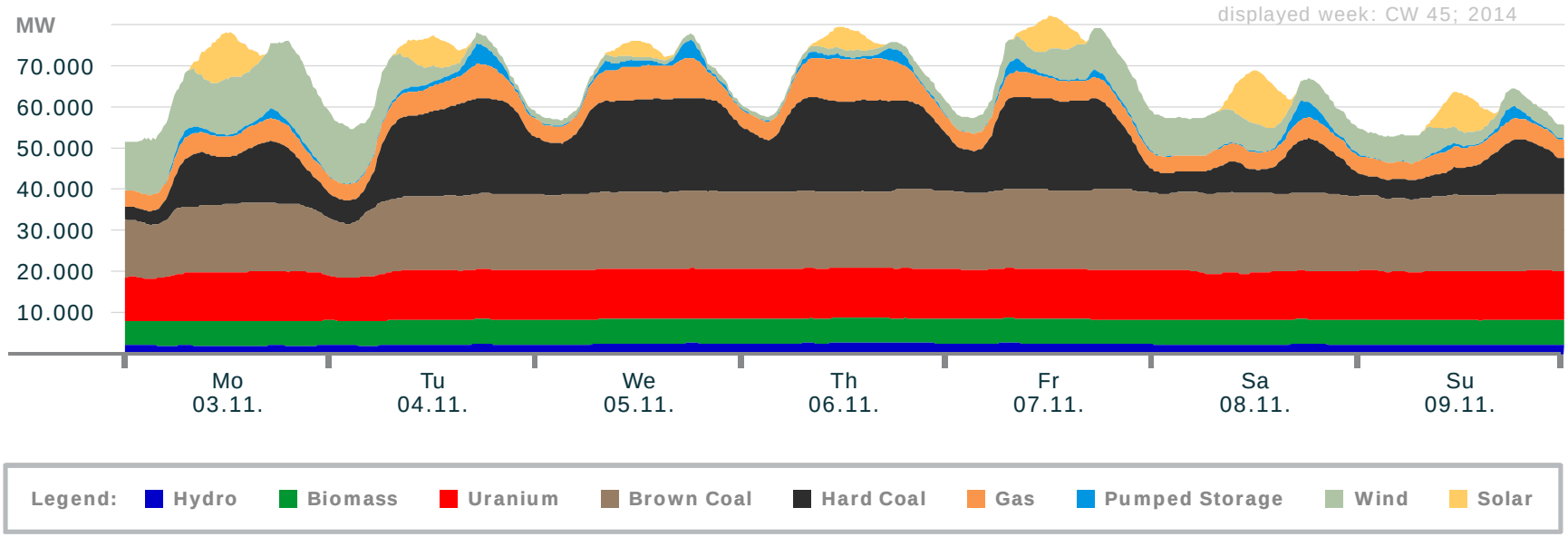
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.21		10.91	13.55	2.82	3.01	0	0.31	0
max. power (GW)	2.33		11.99	19.82	22.65	9.86	4.36	11.51	13.99
weekly energy (TWh)	0.33	0.97	2	3.09	2.3	0.82	0.15	0.65	0.4

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 45

Actual production



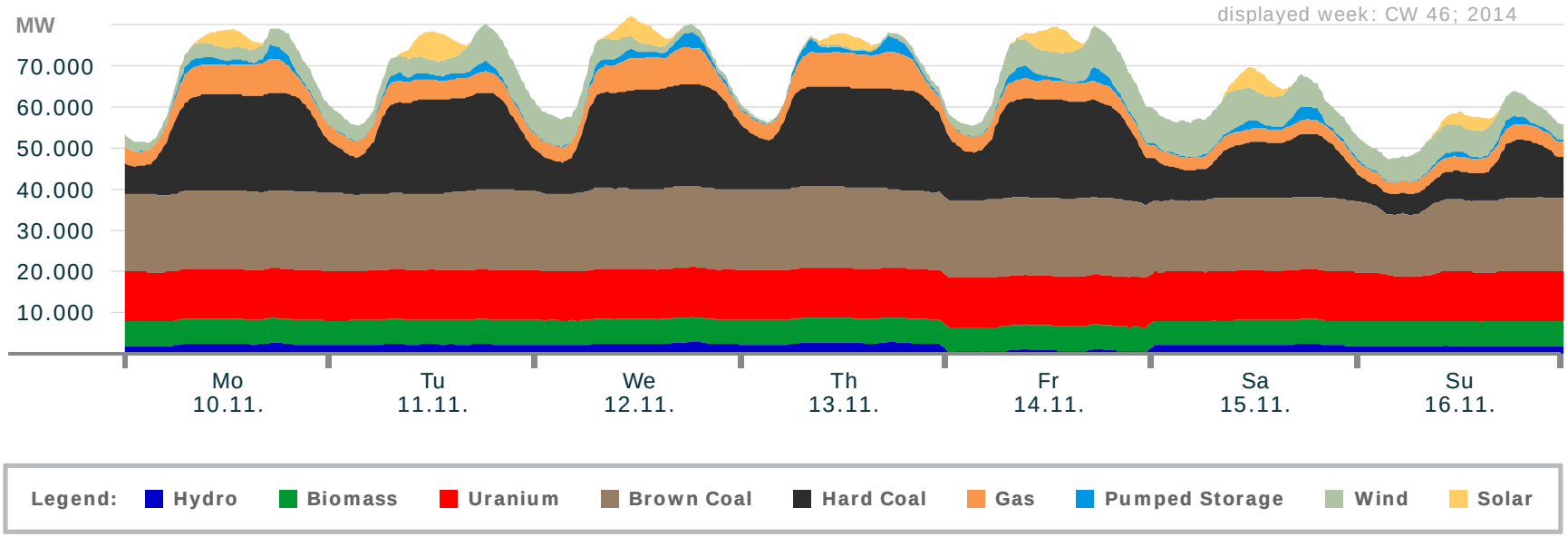
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.38		10.07	12.98	3.15	3.9	0	0.47	0
max. power (GW)	1.94		12.06	19.7	23.13	10.45	4.99	19.76	12.88
weekly energy (TWh)	0.32	1.01	1.99	3.04	2.37	0.92	0.16	1.0	0.3

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 46

Actual production



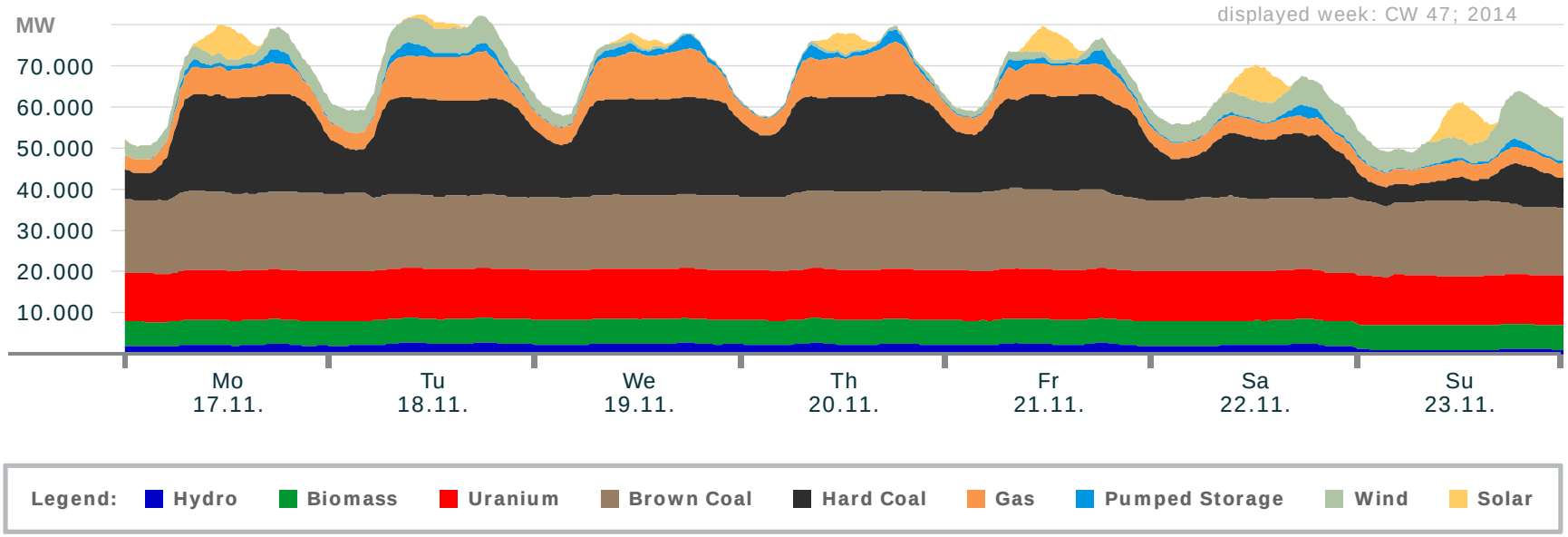
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.37		10.94	14.8	4.95	2.88	0.01	0.06	0
max. power (GW)	2.16		12.05	19.82	24.89	9.0	3.79	9.99	7.04
weekly energy (TWh)	0.34	1.01	2.03	3.12	2.82	0.81	0.18	0.78	0.17

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 47

Actual production



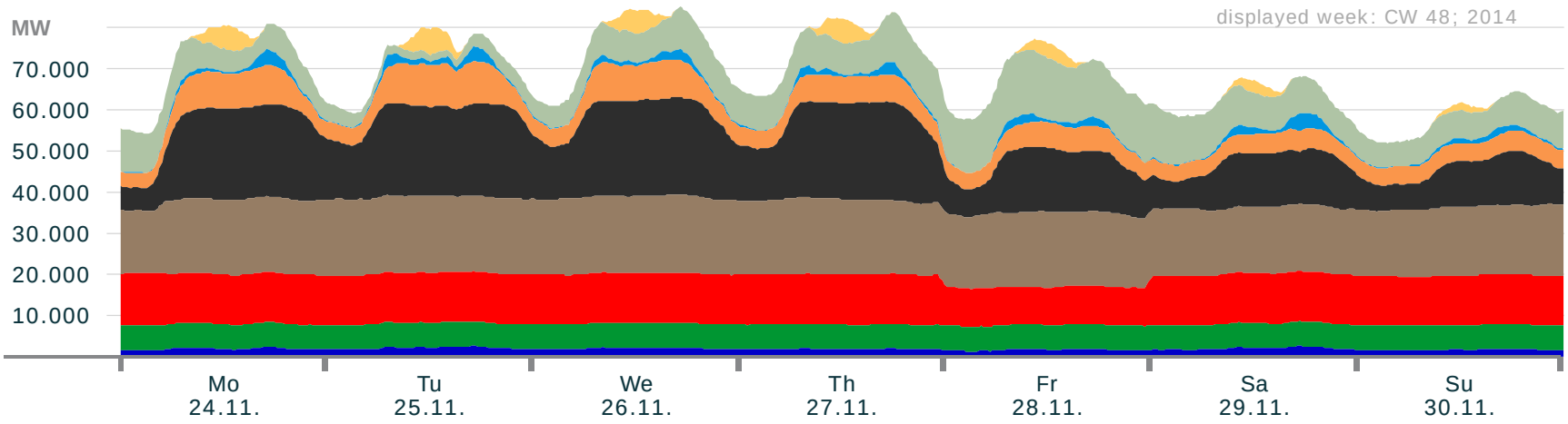
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.97		11.26	16.49	4.2	3.32	0.02	0.11	0
max. power (GW)	2.07		12.2	19.54	23.72	12.66	3.54	12,0	9.11
weekly energy (TWh)	0.34	1.01	2.03	3.07	2.88	1.06	0.16	0.58	0.19

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 48

Actual production



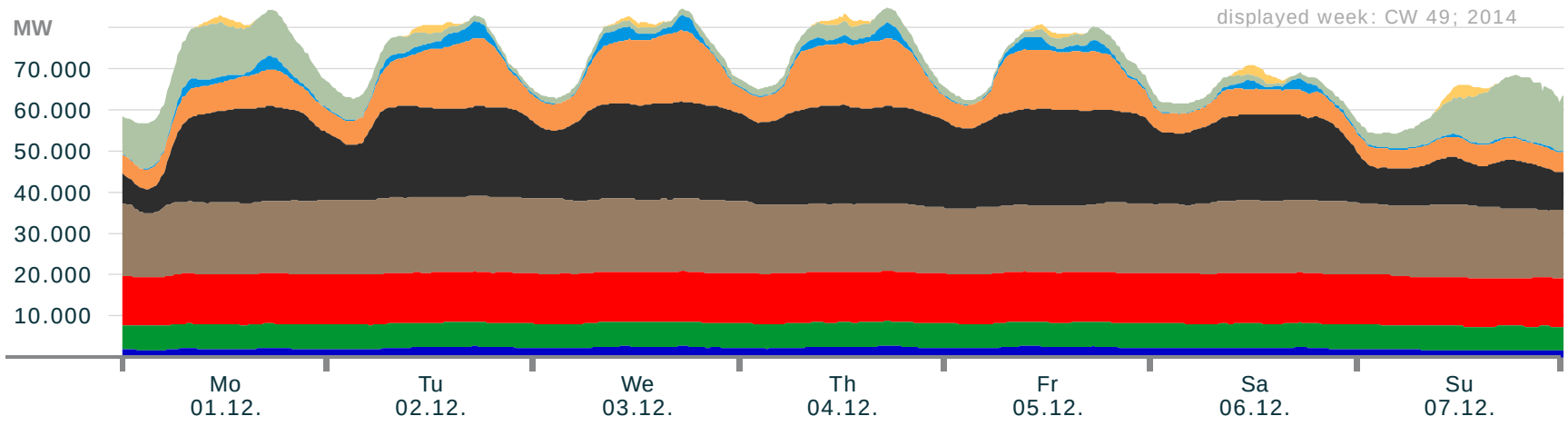
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.17		9.02	15.1	5.37	3.43	0	1.07	0
max. power (GW)	1.86		12.52	18.93	23.83	10.35	4.18	15.28	6.23
weekly energy (TWh)	0.31	1.01	1.97	2.96	2.65	0.99	0.17	1.36	0.15

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 49

Actual production



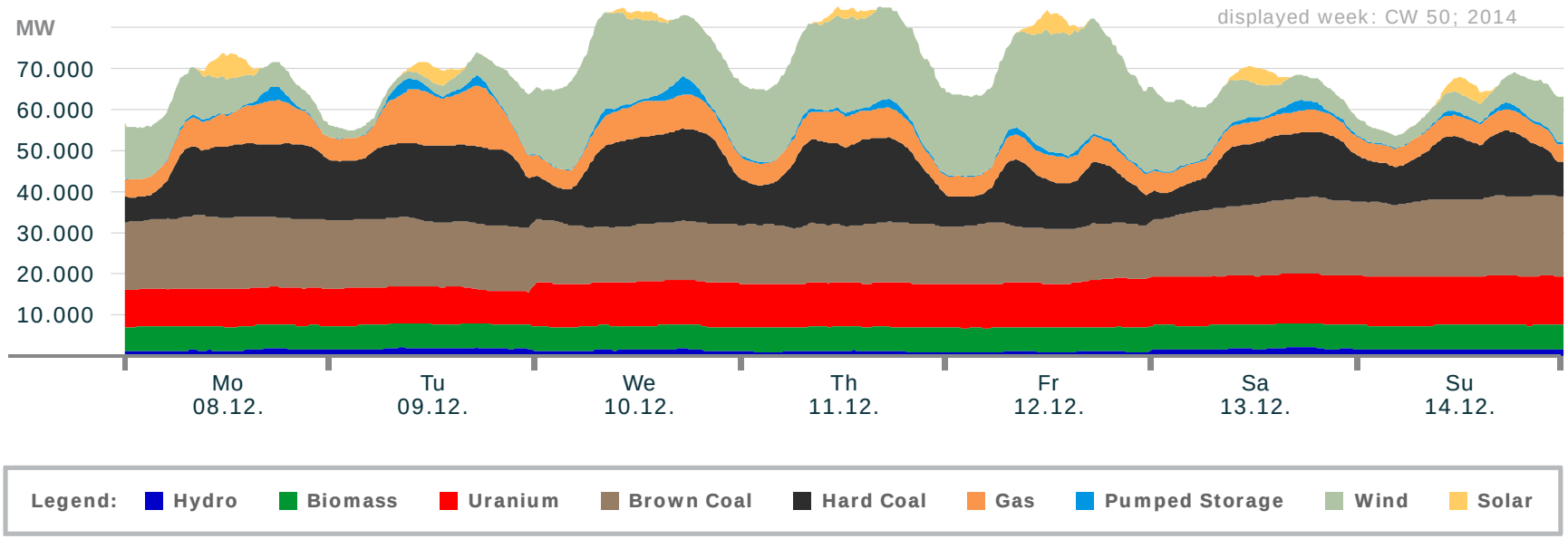
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	1.4		11.44	15.36	5.81	4.52	0.01	0.65	0
max. power (GW)	2.02		12.11	18.43	23.85	17.36	4.19	15.43	3.13
weekly energy (TWh)	0.35	1.0	2.04	2.91	3.19	1.52	0.19	0.73	0.06

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 50

Actual production



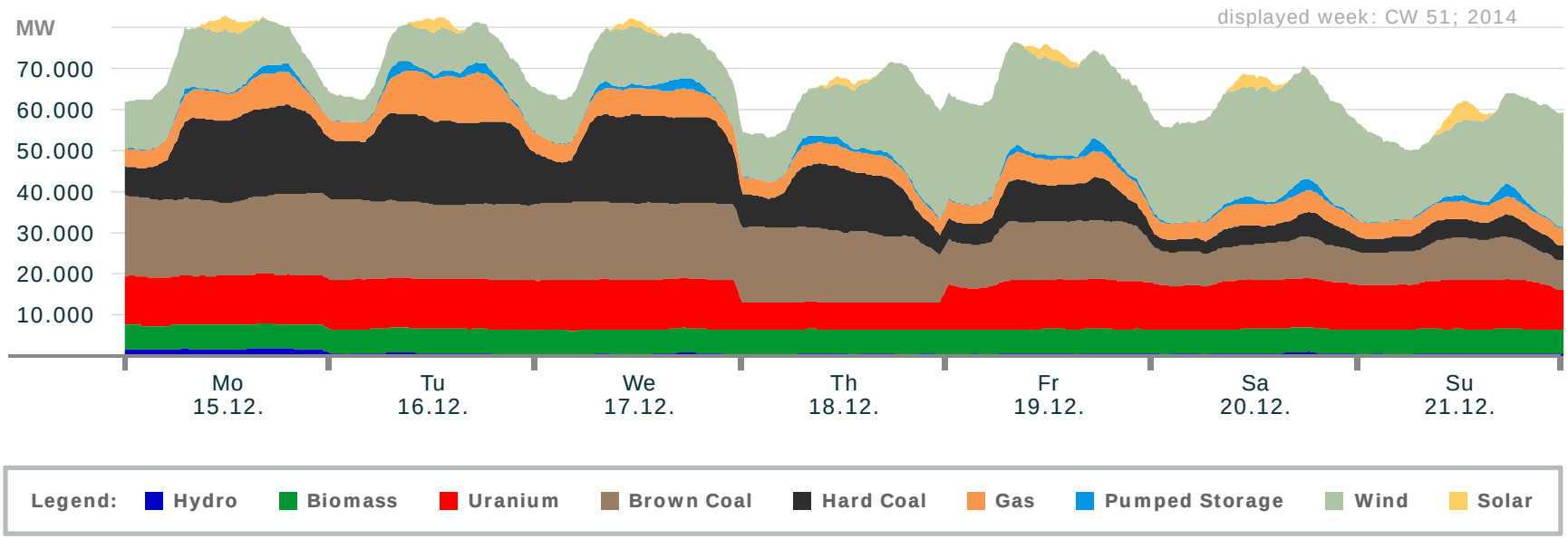
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.86		7.92	13.02	5.9	4.13	0	1.45	0
max. power (GW)	1.58		11.97	19.55	22.4	14.81	4.39	29.69	5.83
weekly energy (TWh)	0.23	1.0	1.79	2.67	2.43	1.09	0.14	2.18	0.12

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 51

Actual production



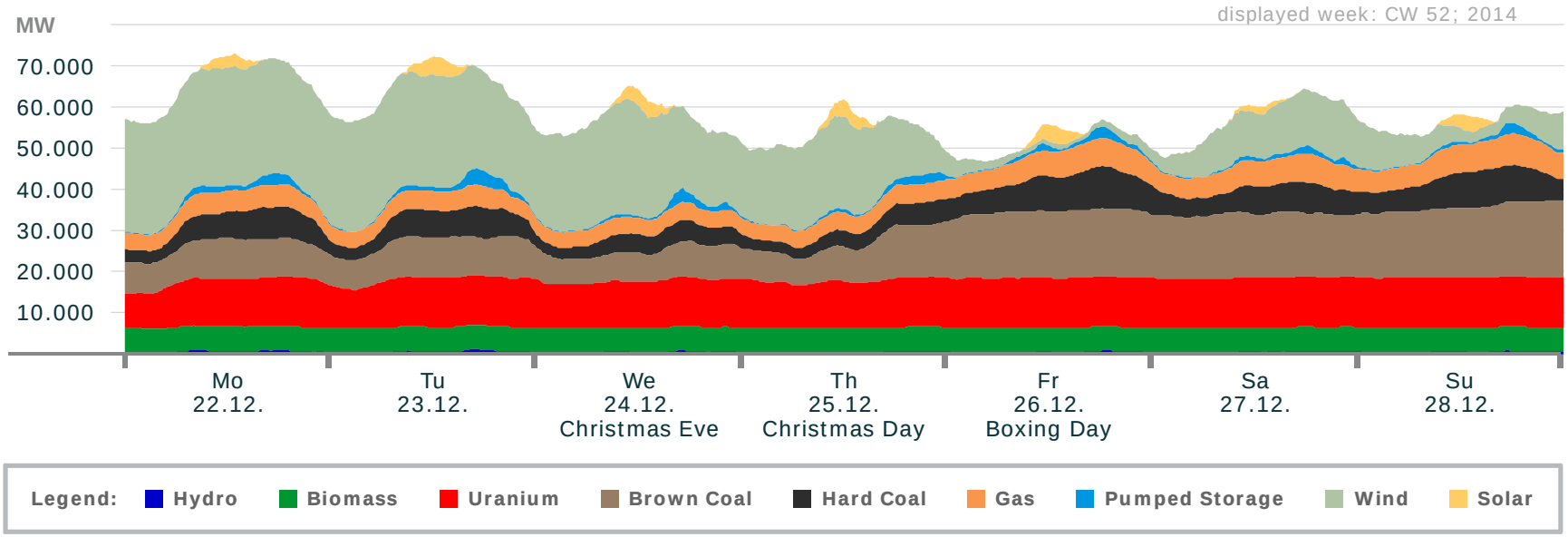
	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.27		6.57	7.35	2.96	3.65	0.01	5.32	0
max. power (GW)	1.48		12.08	19.93	21.65	12.34	3.27	27.68	4.6
weekly energy (TWh)	0.12	1.0	1.86	2.49	1.95	0.95	0.15	2.82	0.09

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Electricity Production in Germany: Calendar Week 52

Actual production



	Hyd	Bio	Uran	BC	HC	Gas	PSt	Wind	Solar
min. power (GW)	0.19		8.34	5.98	2.71	3.73	0.02	0.84	0
max. power (GW)	0.38		12.06	18.58	10.34	7.63	3.95	28.85	4.45
weekly energy (TWh)	0.08	1.0	1.95	1.98	0.96	0.85	0.16	2.68	0.11

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

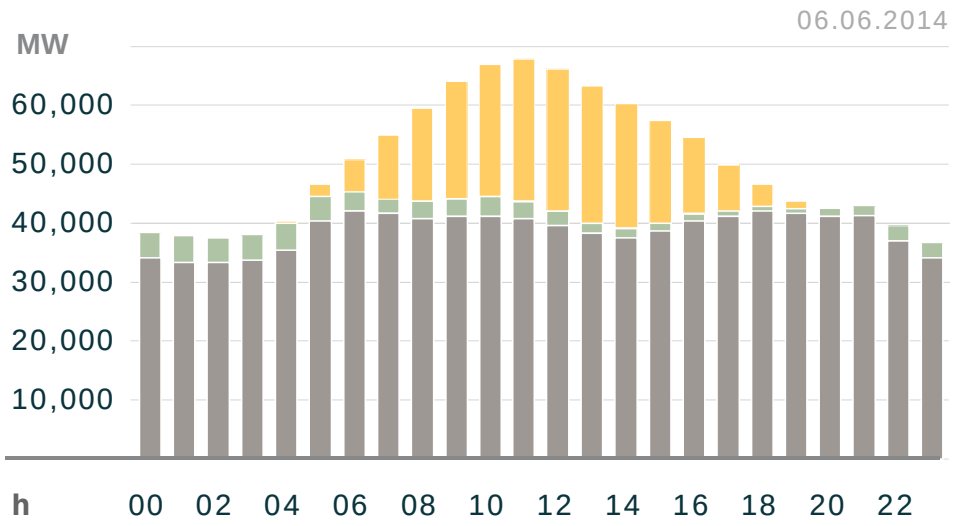
Fraunhofer ISE

AGENDA

- Annual energies
- Monthly energies
- Weekly energies
- Daily energies
- Annual power curves
- Monthly power curves
- Weekly power curves
- Exemplary daily power curves

Date of maximum total and peak solar power production (in GW and GWh): Friday 6th of June

Actual production



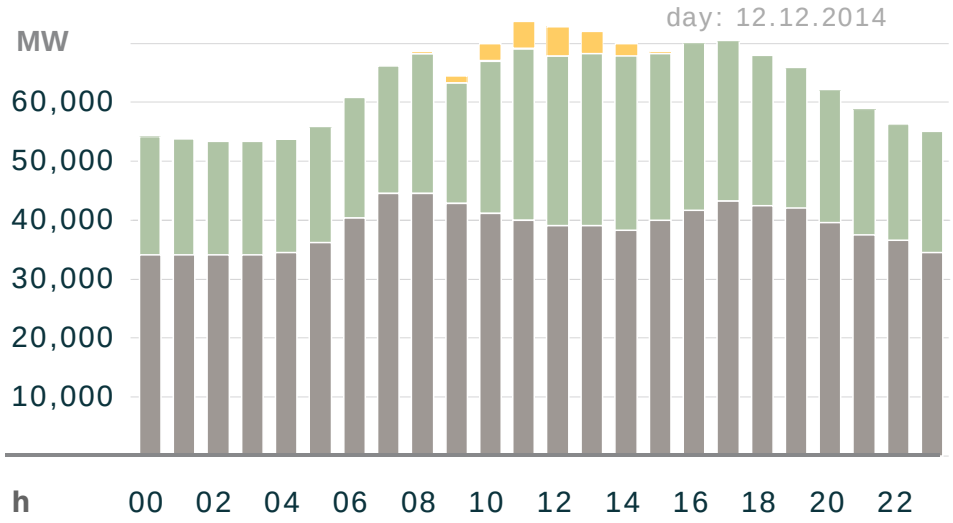
	min. power	max. power	daily energy
Solar	0 GW	24.2 GW	212 GWh
Wind	0.75 GW	4.5 GW	65 GWh
Conventional > 100 MW	33.3 GW	42.1 GW	934 GWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Date of maximum total and peak wind power production (in GW and GWh): Friday 12th of December

Actual production



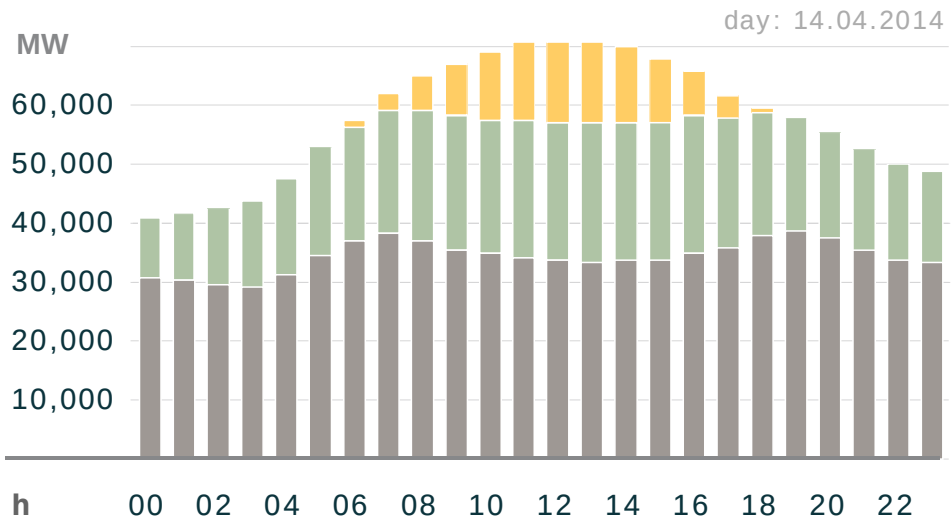
	min. power	max. power	daily energy
Solar	0 GW	4.9 GW	20 GWh
Wind	19.0 GW	29.7 GW	562 GWh
Conventional > 100 MW	34.0 GW	44.5 GW	935 GWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Date of maximum peak wind plus solar power production (in GW): Monday 14th of April

Actual production



- Maximum power

  Solar + Wind = 37,8 GW

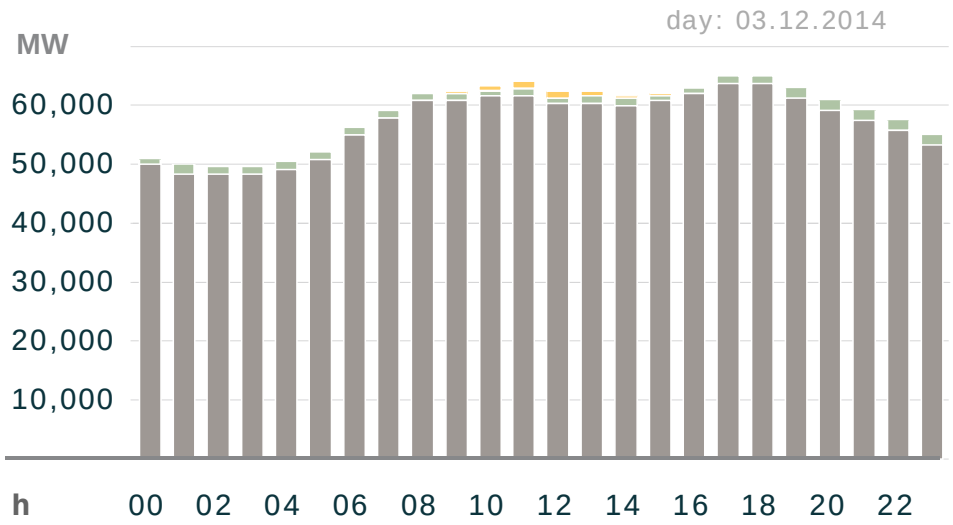
	min. power	max. power	daily energy
Solar	0 GW	14.3 GW	107 GWh
Wind	8.7 GW	23.9 GW	454 GWh
Conventional > 100 MW	29.3 GW	38.8 GW	823 GWh

Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Date of maximum total and peak conventional power production (in GW and GWh): Wednesday 3rd of Decemb.

Actual production



	min. power	max. power	daily energy
Solar	0 GW	1.23 GW	5.5 GWh
Wind	0.96 GW	1.84 GW	31.2 GWh
Conventional > 100 MW	48.3 GW	63.8 GW	1371 GWh

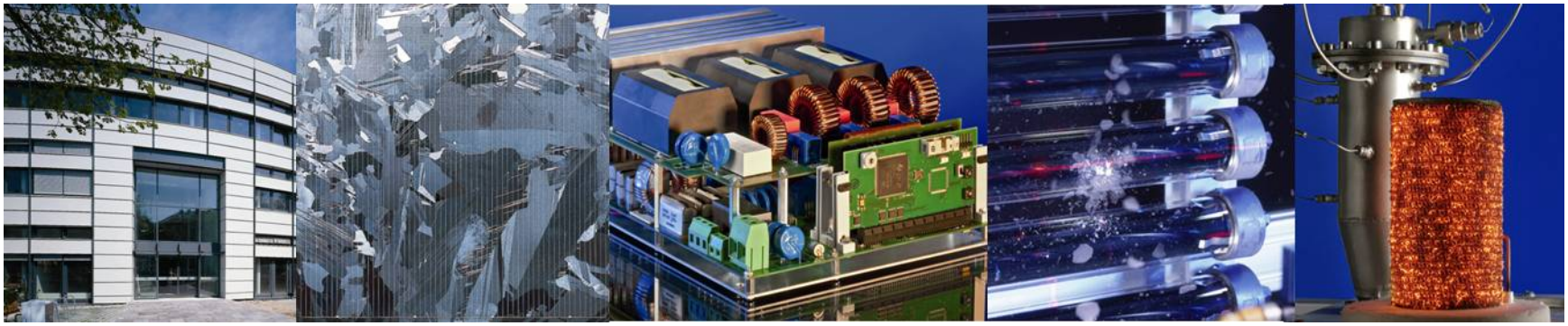
Graph: Bruno Burger, Fraunhofer ISE; Data: EEX Transparency Platform

Fraunhofer ISE

Changes in 2014

- Run of River and pumped storage with natural feeder were summarized for hydropower.
- Biomass was added. It includes the production of solid biogenic substances, liquid biogenic materials, biogas, sewage gas, landfill gas and the biogenic share of waste.

Thank you for your Attention!



Fraunhofer Institute for Solar Energy Systems ISE

Prof. Dr. Bruno Burger

www.ise.fraunhofer.de

bruno.burger@ise.fraunhofer.de

Fraunhofer ISE