Strategic reserve volume determination for winter 2020-21

Data and assumptions for the next volume evaluation:
winters **2020-21**, 2021-22 and 2022-23

Contents

1. Data for Belgium – for discussion
   A. Production – profiled & individually modelled
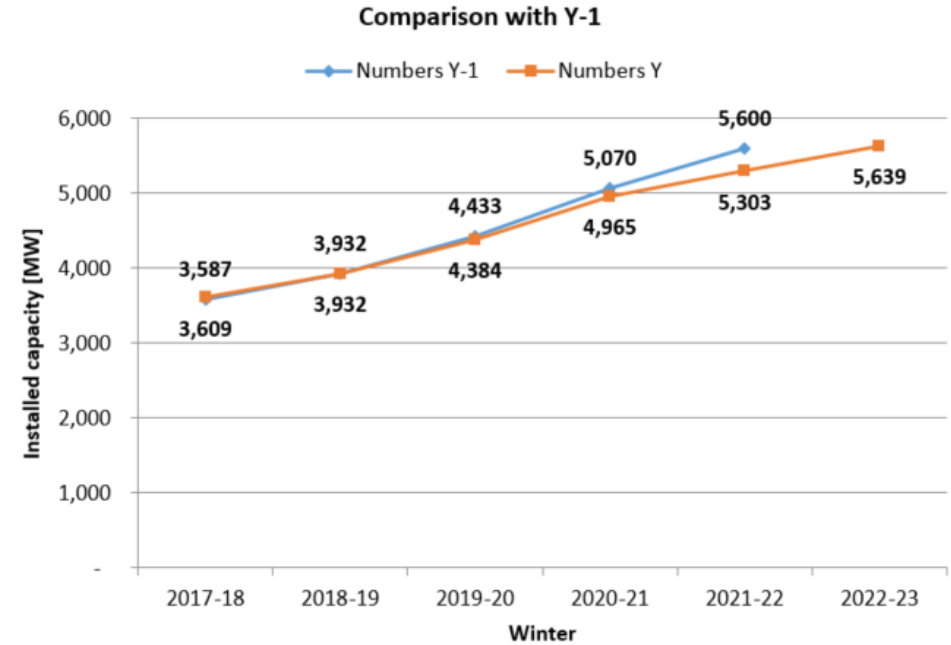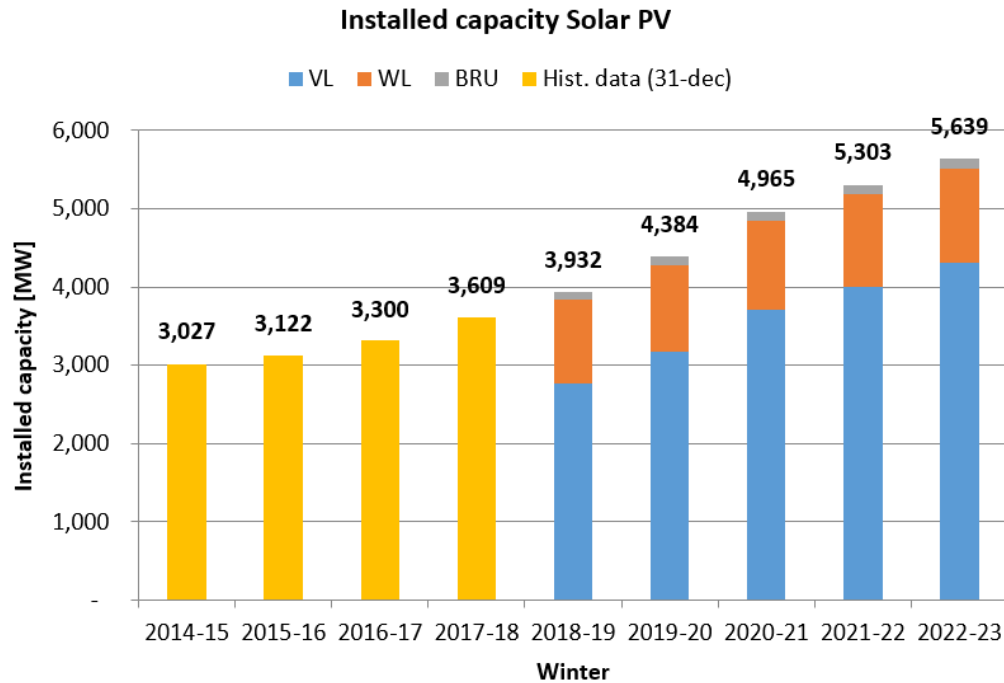   B. Demand
   C. Market response
   D. Balancing reserves
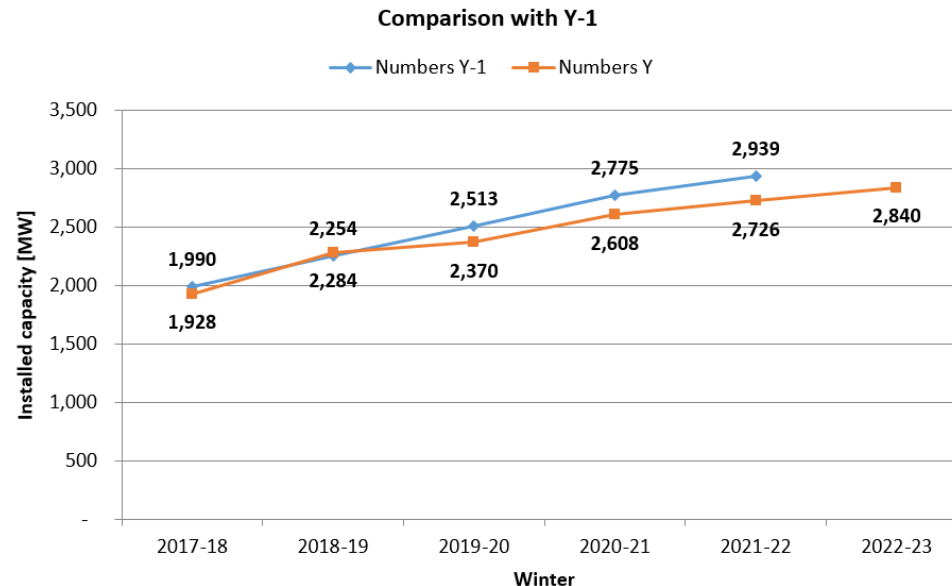
BE Production park

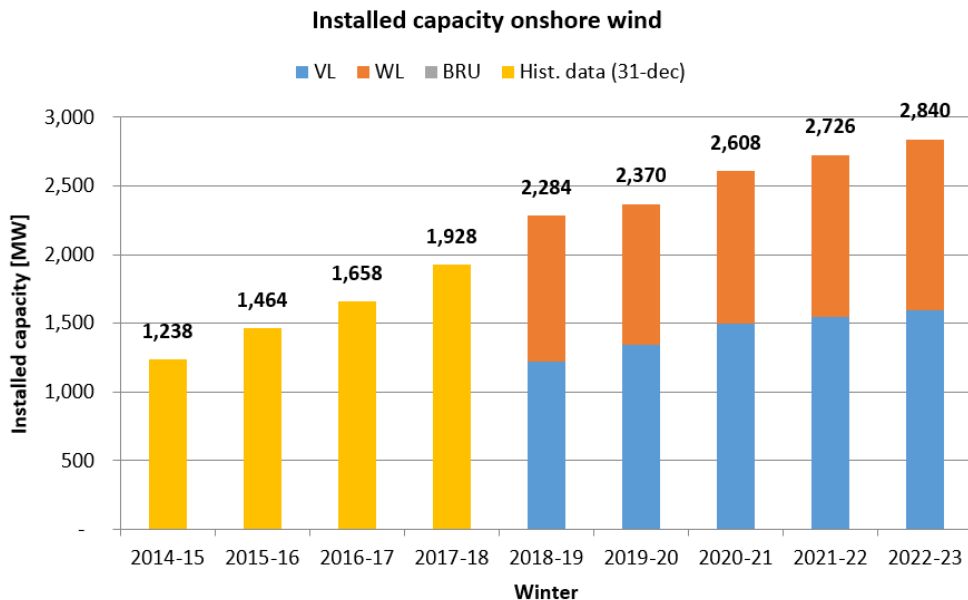## Proposal for hypotheses

Solar PV – numbers based on information received from regions

Installed capacity Solar PV

Legend: VL | WL | BRU | Hist. data (31-dec)

Comparison with Y-1

Legend: Numbers Y-1 | Numbers Y

Decreasing trends due to updated methodology of WL
Both BRU and VL have the same numbers than last year

Installed capacity onshore wind

Legend: ■ VL ■ WL ■ BRU ■ Hist. data (31-dec)

Installed capacity [MW] — Winter

- 2014-15: 1,238
- 2015-16: 1,464
- 2016-17: 1,658
- 2017-18: 1,928
- 2018-19: 2,284
- 2019-20: 2,370
- 2020-21: 2,608
- 2021-22: 2,726
- 2022-23: 2,840

Comparison with Y-1

Legend: ◆ Numbers Y-1 ■ Numbers Y

Installed capacity [MW] — Winter

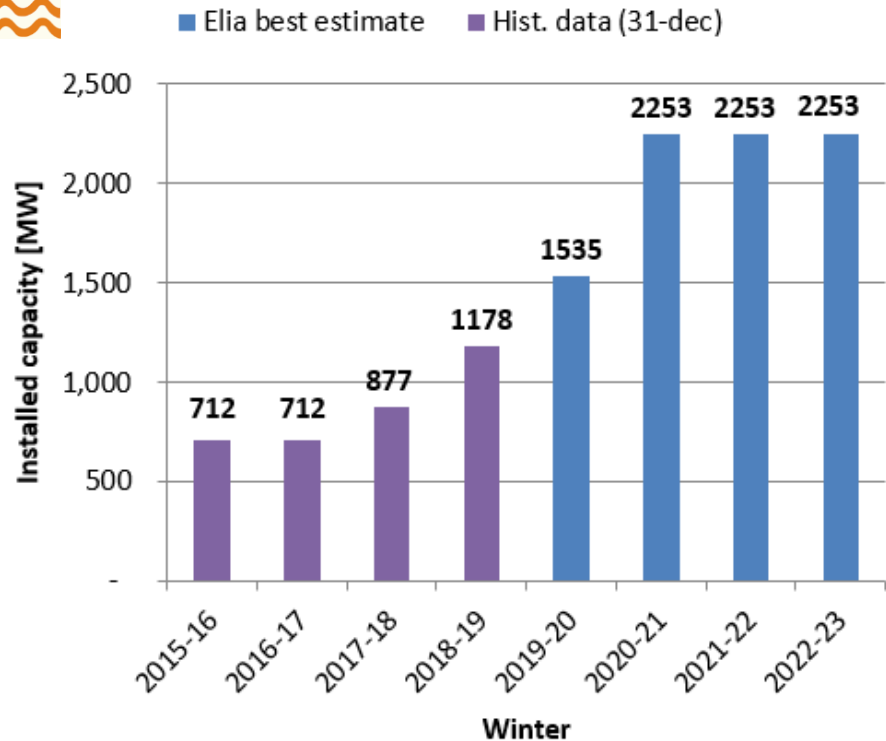| Winter	Numbers Y-1	Numbers Y
2017-18	1,990	1,928
2018-19	2,254	2,284
2019-20	2,513	2,370
2020-21	2,775	2,608
2021-22	2,939	2,726
2022-23		2,840

Decreasing trends due to updated methodology of WL
VL has the same numbers than last year

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Offshore wind – Elia best estimate
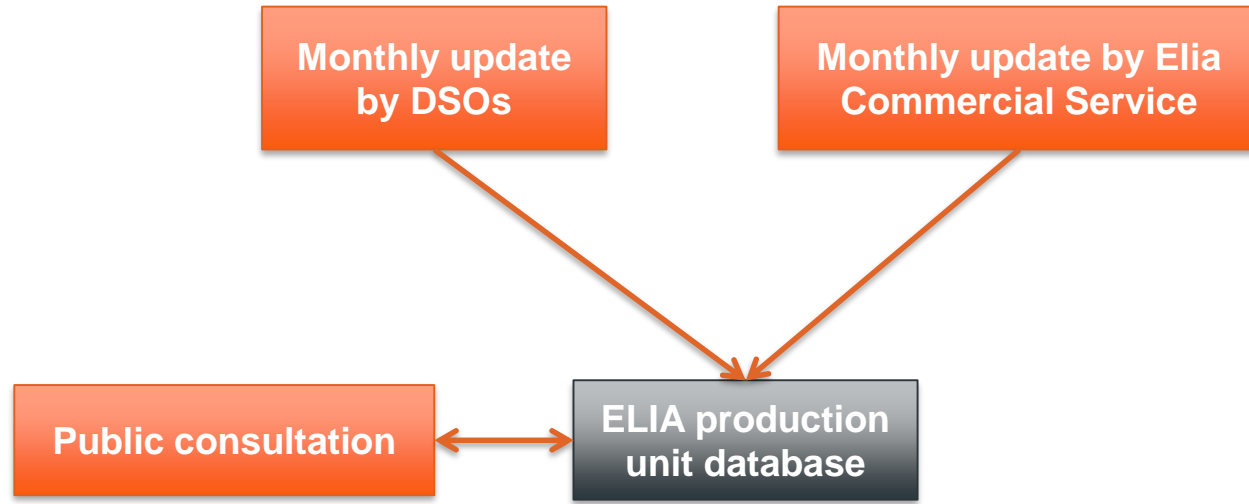

Installed capacity offshore wind

- Elia best estimate
- Hist. data (31-dec)

Comparison with Y-1

- Numbers Y-1
- Numbers Y
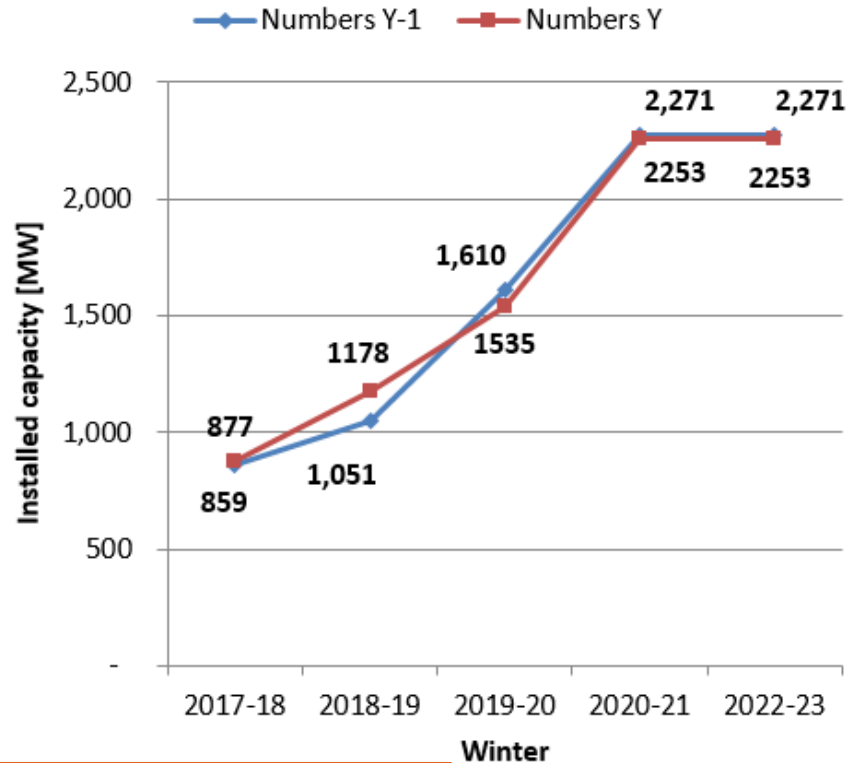
Slightly lower numbers due to change in installed wind turbines in coming projects

Elia production unit database

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┌──────────────────────┐        ┌──────────────────────────┐
│  Monthly update       │        │  Monthly update by Elia   │
│  by DSOs              │        │  Commercial Service        │
└──────────────────────┘        └──────────────────────────┘
              ╲                      ╱
               ╲                    ╱
                ╲                  ╱
┌────────────────────┐   ┌──────────────────────┐
│ Public consultation │◄─►│  ELIA production      │
│                     │   │  unit database        │
└────────────────────┘   └──────────────────────┘
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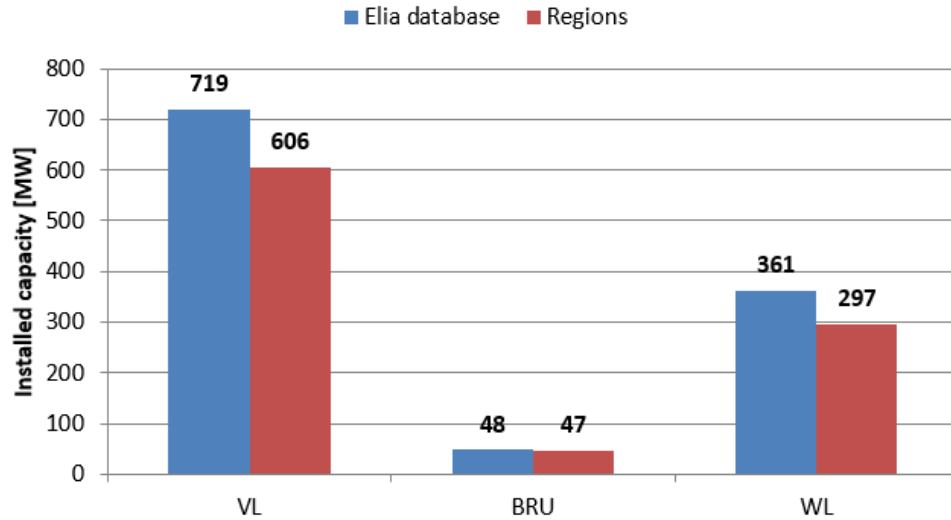
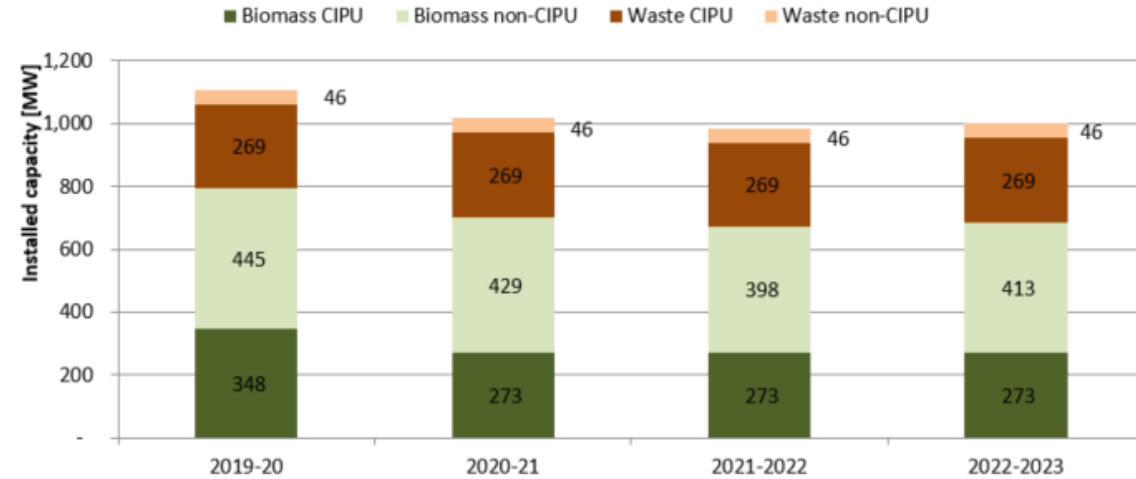Database used in multiple processes, allowing for various checks:

- Grid planning for new/upgrades of connections
- Operational network studies
- Various open statistics

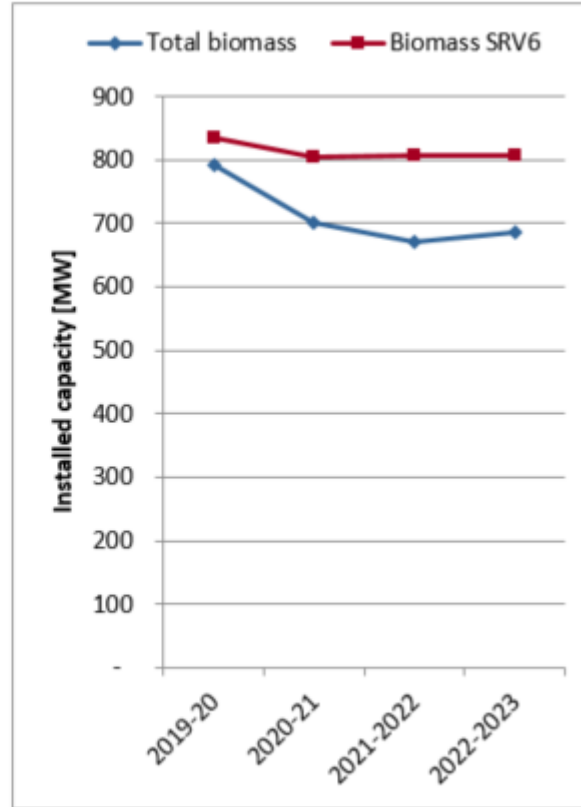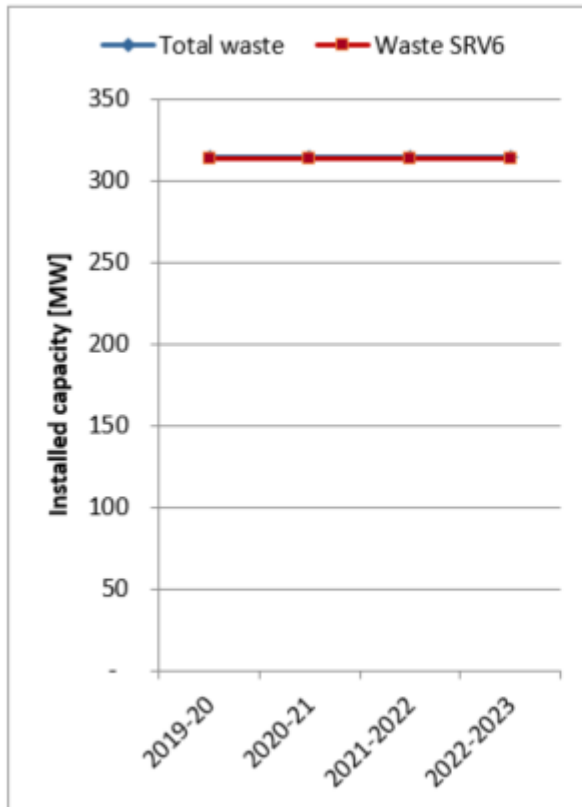# Biomass & waste – comparison with Regions

2019-08 installed capacity Biomass & Waste

Current Installed capacity biomass & waste Elia database
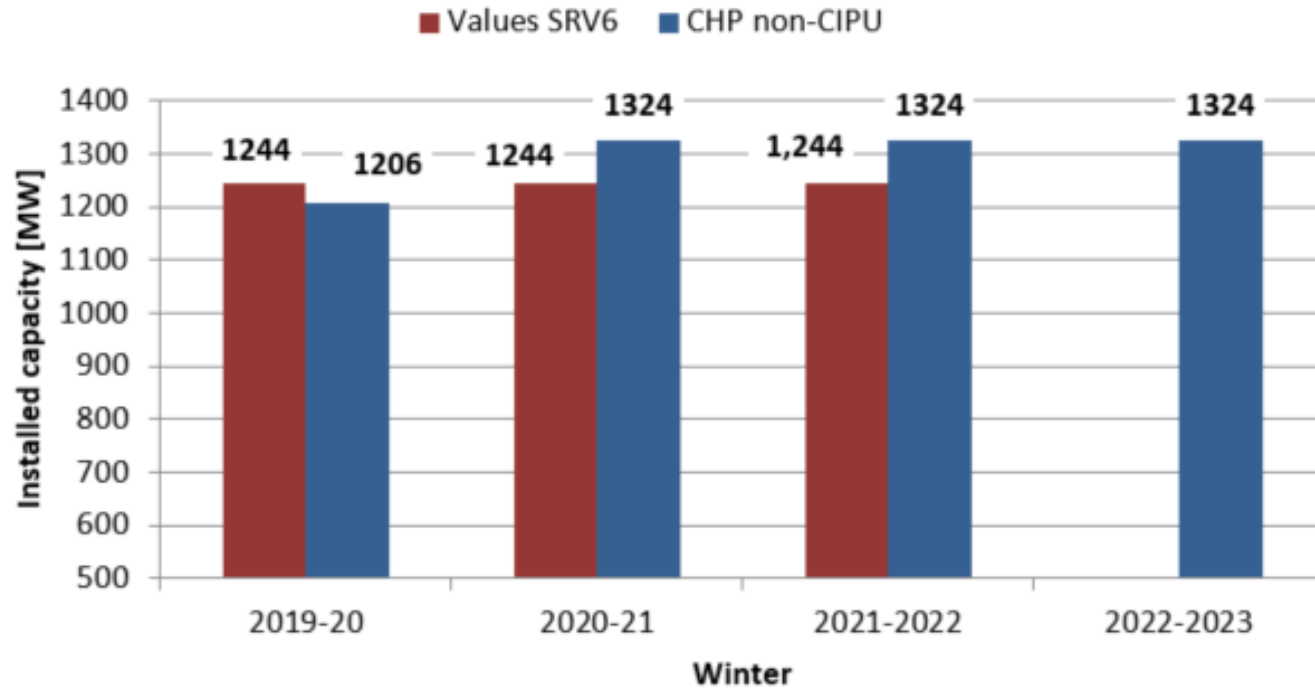Growth rate derived from Regions data

Biomass & waste – comparison with SR 2019/20 (SRV6)

The decrease observed for Biomass is mainly due to the recently announced decommissioning of AWIRS expected in 2020.

Non-CIPU (excl. Bio & Waste)

Legend: Values SRV6 ■ CHP non-CIPU ■

Chart — Installed capacity [MW] vs Winter:

Winter	Values SRV6	CHP non-CIPU
2019-20	1244	1206
2020-21	1244	1324
2021-2022	1,244	1324
2022-2023		1324

2019-20 retains only 'in service' units Following winters also take reserved & acquired capacity nominations into account

For this year the installed capacity is still under last year's forecast, but we are looking at an August Elia Database snapshot
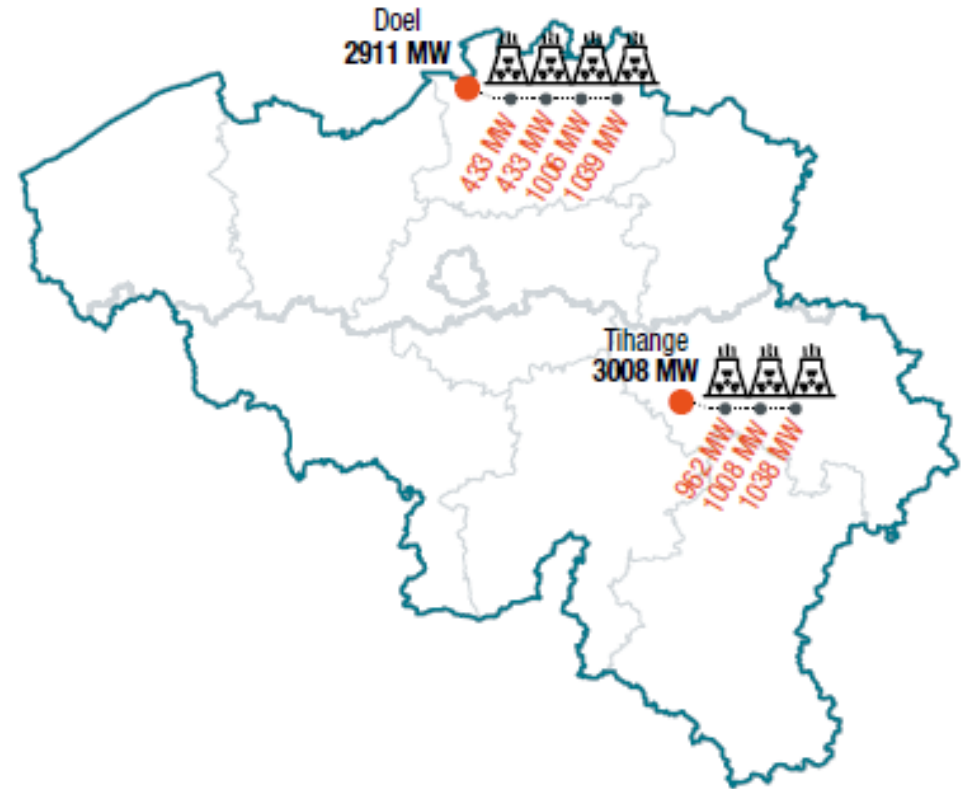
Hydro RoR
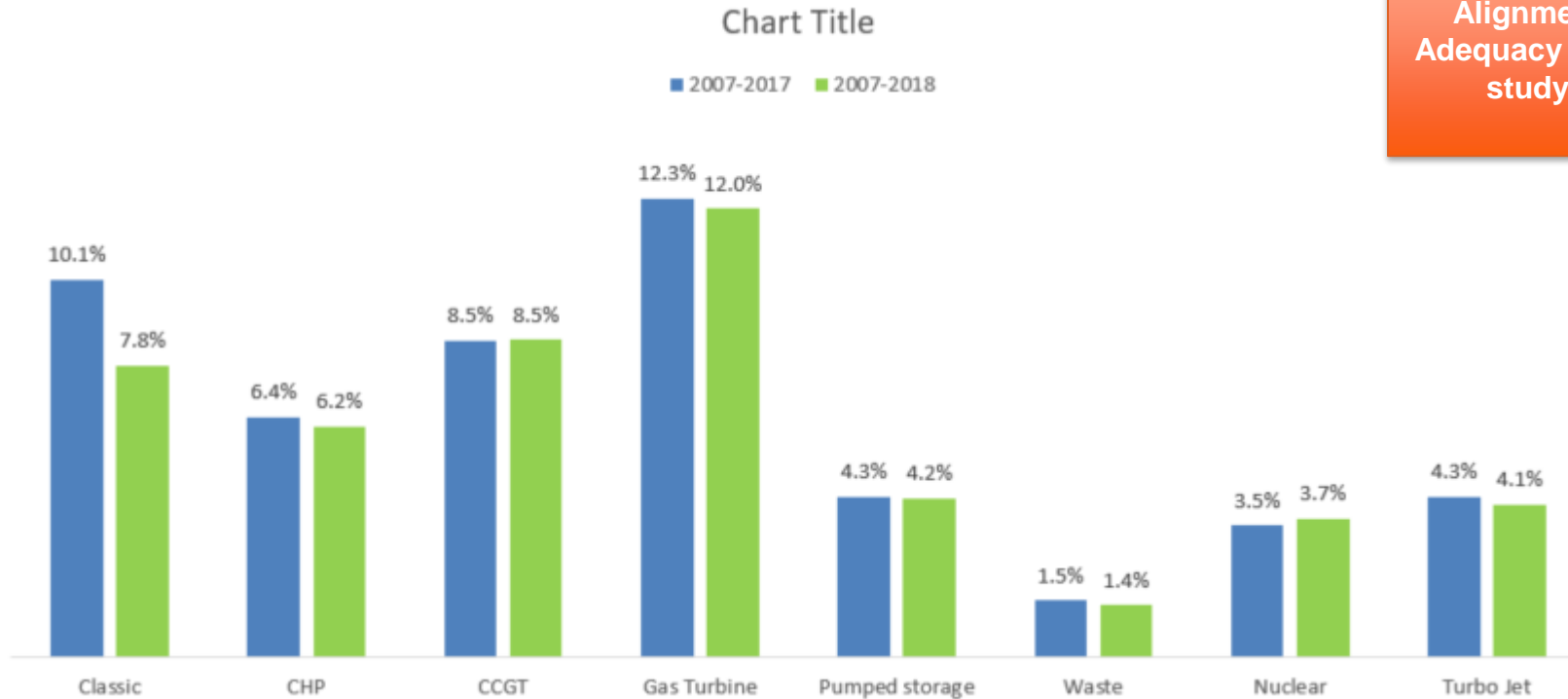
ROR projections for SR 2020-21: projections by regions
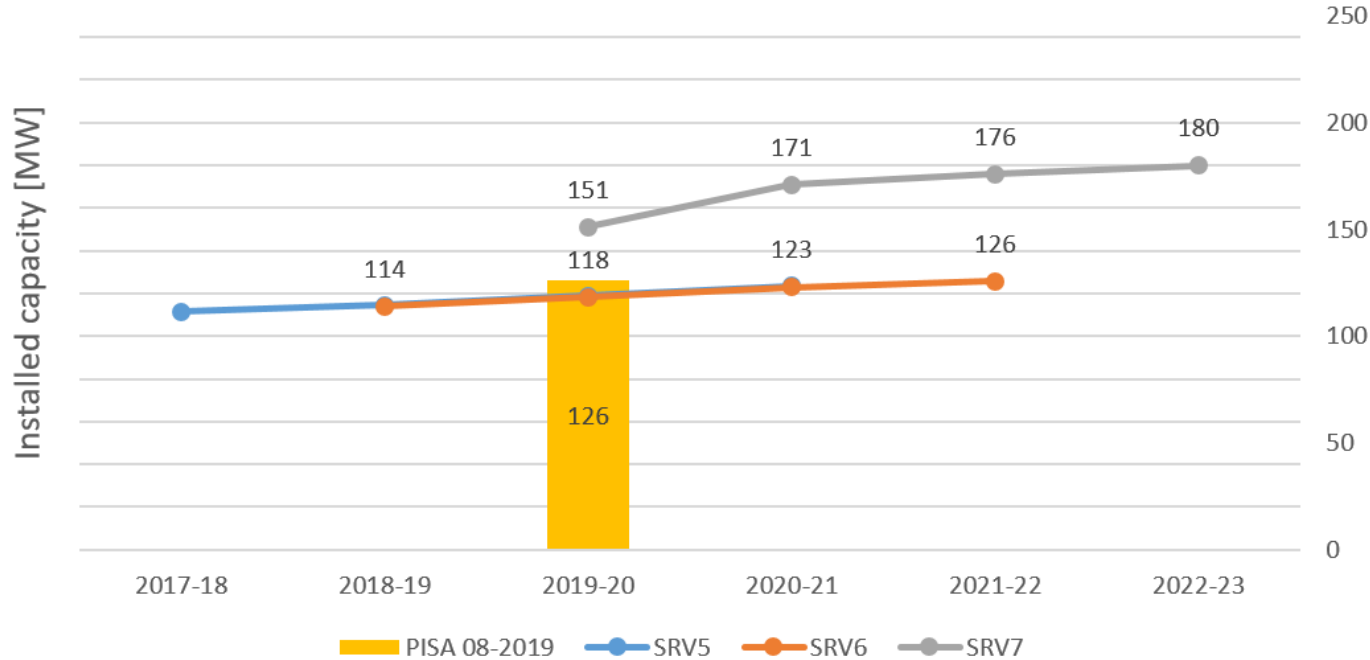
Increasing trend due to higher reservation in green certificates in WL (due to new projects)

Nuclear availability - Base Case based on:

1. In service status:
   - Doel 3 decommission foreseen by law on 01/10/2022
   - Tihange 2 decommission foreseen by law on 01/02/2023

2. Planned maintenance
   - The planned maintenance for winter 2020-2021 is used (REMIT)

3. Forced outage rate

Doel
2911 MW
433 MW
433 MW
1006 MW
1039 MW

Tihange
3008 MW
962 MW
1008 MW
1038 MW

Forced outage rates – update for period 2007-2018

Chart Title

■ 2007-2017　■ 2007-2018

	Classic	CHP	CCGT	Gas Turbine	Pumped storage	Waste	Nuclear	Turbo Jet
2007-2017	10.1%	6.4%	8.5%	12.3%	4.3%	1.5%	3.5%	4.3%
2007-2018	7.8%	6.2%	8.5%	12.0%	4.2%	1.4%	3.7%	4.1%

Alignment with the Adequacy and flexibility study sources

Forced outage rate evolution – Nuclear & CCGT

Nuclear forced outage rate
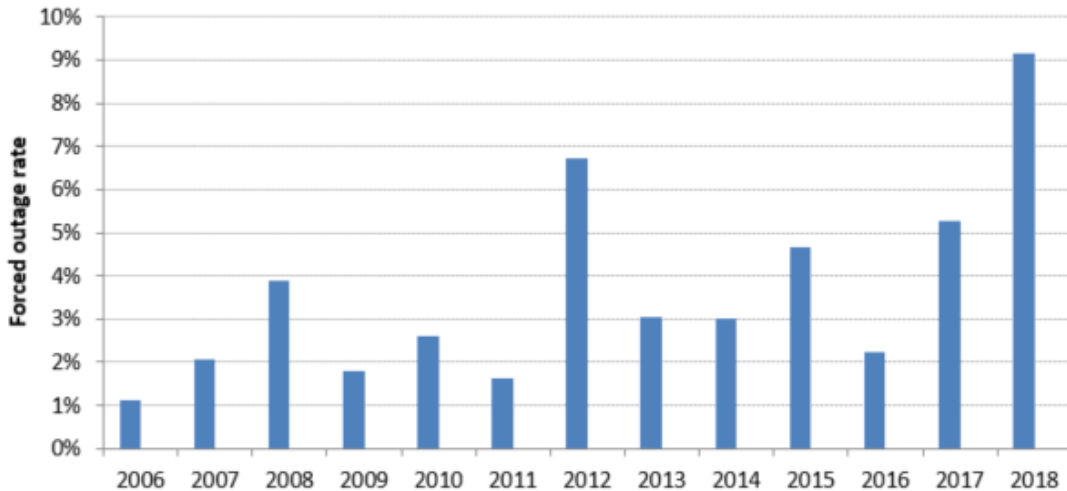
CCGT forced outage rate
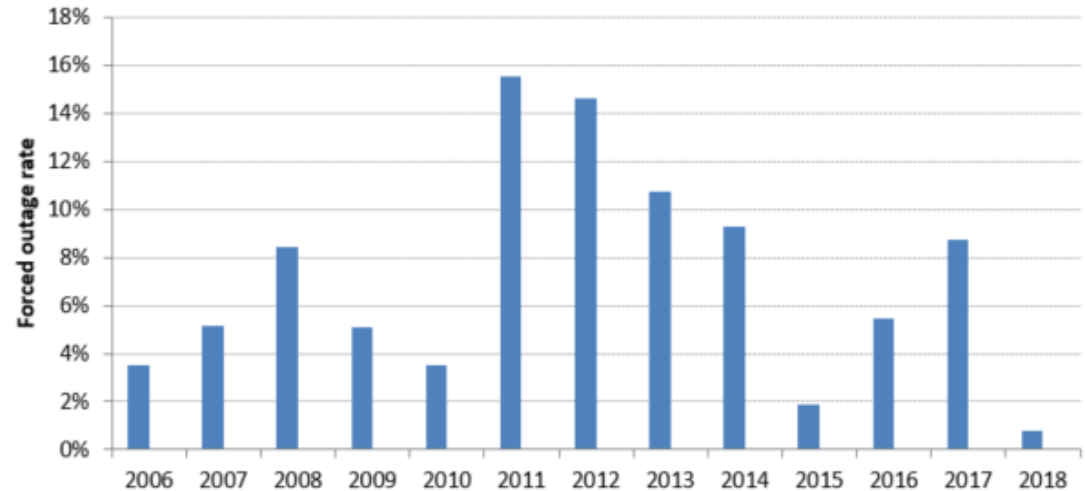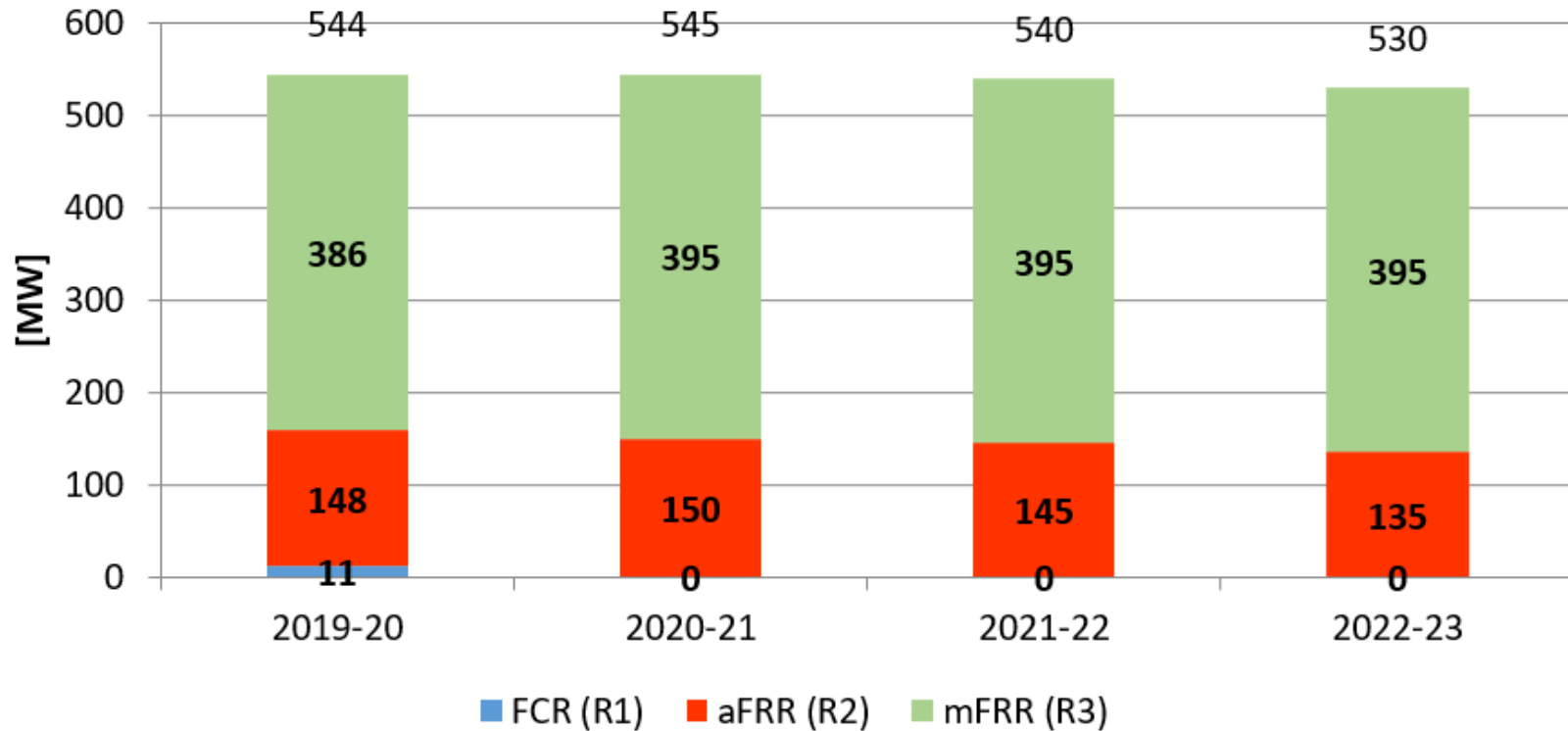
CIPU conventional units

See detailed list.

BE Demand, Market Response & Balancing Reserves & FB
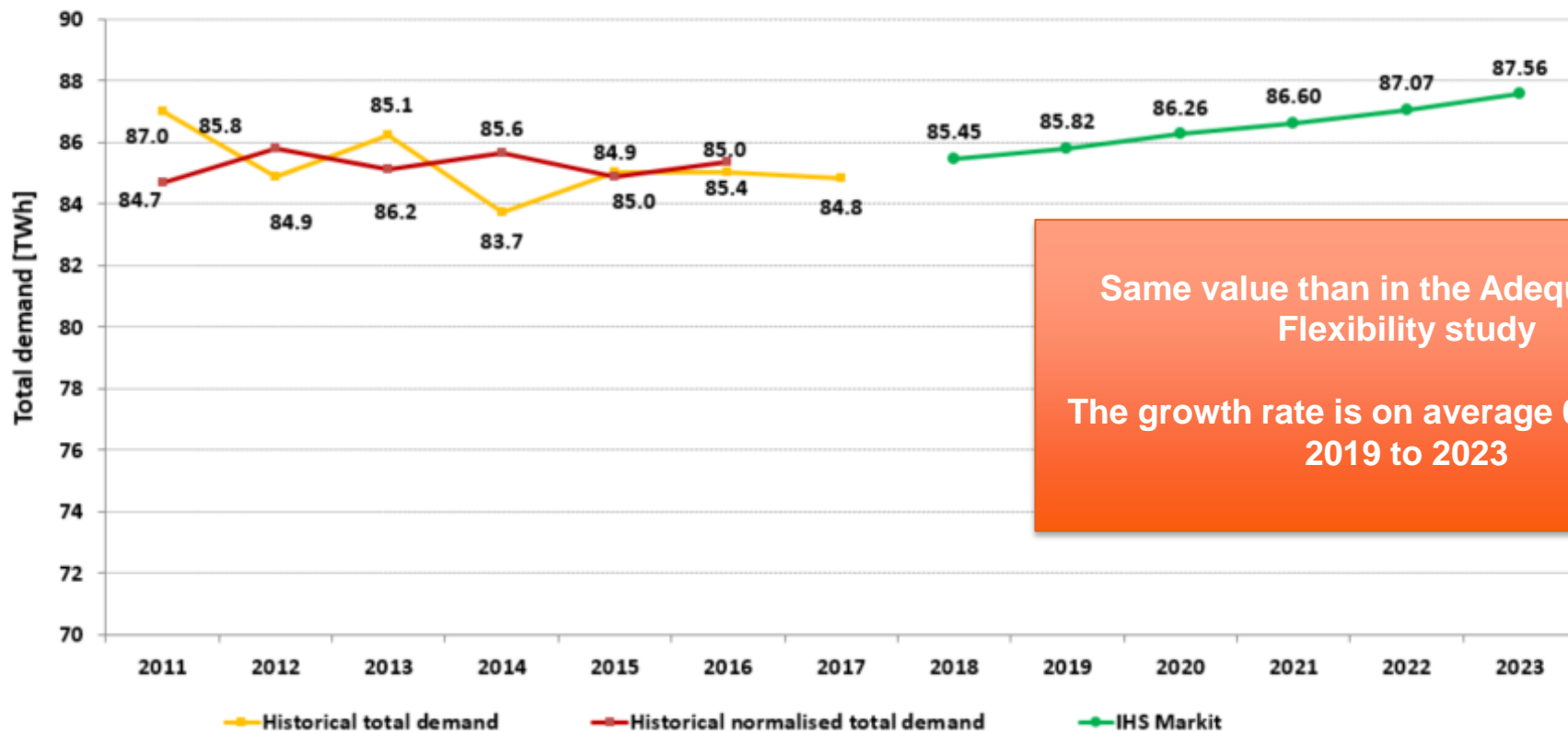
Proposal for hypotheses

Balancing reserves

Part of reserves on BE production

Demand evolution

The latest forecasts February 2019 from IHS Markit have been used

Same value than in the Adequacy and Flexibility study

The growth rate is on average 0.49% from 2019 to 2023

Legend:
- Historical total demand
- Historical normalised total demand
- IHS Markit

Market response – volumes to be taken into account

Results from the "Market Response" subgroup of the TF iSR will be used. These were presented during the TF iSR of 08-07-2019 see: Link
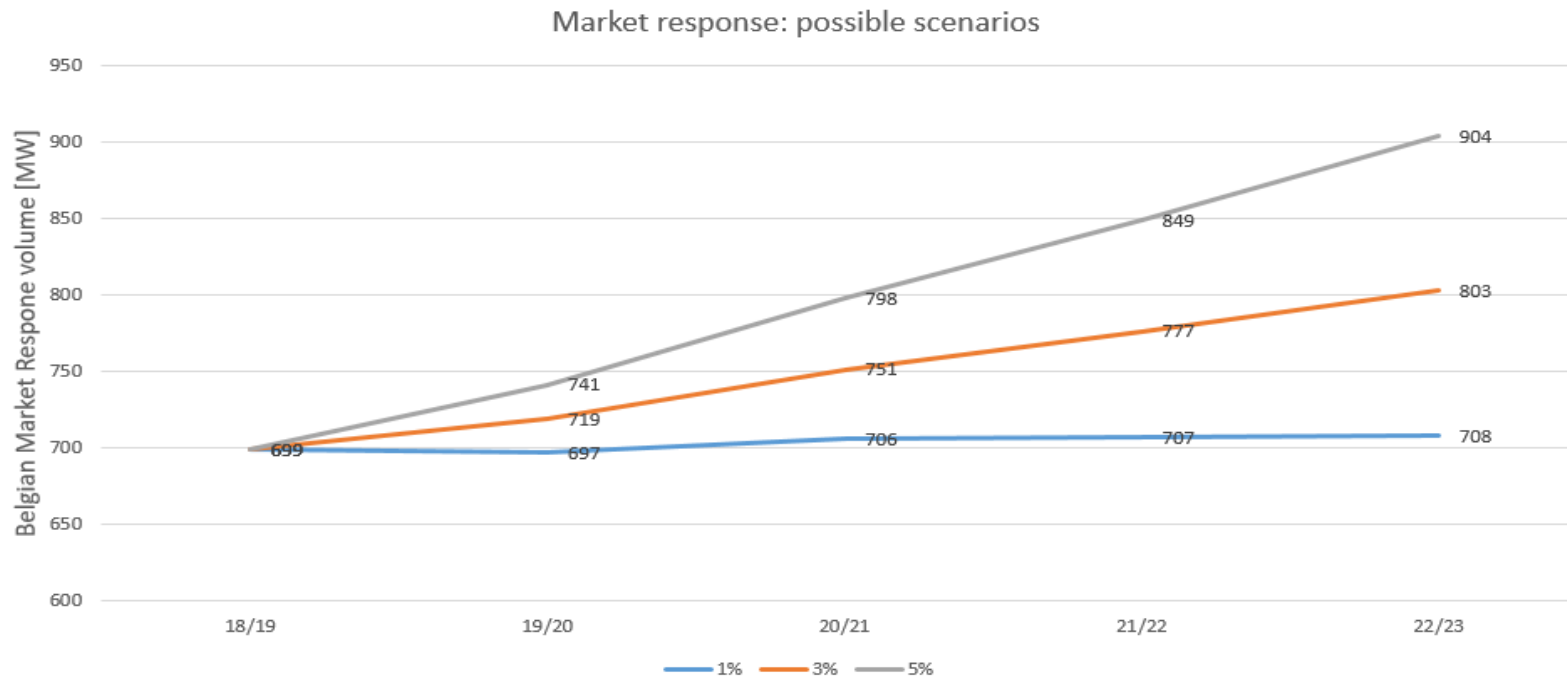
Stakeholders are asked to motivate their best estimate forecast

Market response: possible scenarios

Major improvement of the FB methodology in cooperation with the colleagues from RTE

Year	
2015-16	NTC only modelling
2016-17	1 flow-based domain for all winter
2017-18	Three flow-based domains with DE wind correlation
2018-19	**4 x 24 flow-based domains** with a detailed climate correlation
2019-20	**4 x 24 flow-based domains** with a detailed climate correlation. Update with 2017 SPAIC days.
2020-21	Addition of DE-AT split, Alegro, HTLS upgrades

Overview of the flowbased domains for the 4 winter typical days

BE-FR projected domains for day (AL_FAV): 20181117

BE-FR projected domains for day (AL_FAV): 20181128

BE-FR projected domains for day (AL_FAV): 20181228

BE-FR projected domains for day (AL_FAV): 20190122

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