

Statistics and forecast

This is quarterly edition of statistics and forecasts for the Wind Power Market, covering data from turbine manufacturers and wind power developers acting on the Swedish market (estimated coverage is 100 percent respectively 95 percent of the total Swedish market)

Q4 2016

Svensk Vindenergi – Swedish Energy Association, SWEA

The statistics and forecast

- **The statistics** are based on the order books of the turbine manufacturers and project portfolios of the wind power developers presented at aggregated level
- **The forecast** consists of three future scenarios (low, base, high). They are based on assumptions regarding which projects will be realized - considering today's market situation and the future's.
- **Low case:** Only projects where turbine contracts (firm and uncondition) have been signed will be realized. In this scenario no further investment decisions are made, hence this scenario defines the lower limit of wind power growth in Sweden.
- **Base case:** Projects with signed turbine contracts, approximately 10 percent of permitted projects and 5 percent of projects under permission process will be realized. This is the most realistic scenario and is the official forecast.
- **High case:** Projects with signed turbine contracts, around 15 percent of permitted projects and 10 percent of projects under permission process will be realized. This scenario may be relevant in circumstances leading to higher electricity and green certificate prices and sets the ceiling for growth of wind power in Sweden.

Last year

Total by the end of 2015

Turbines: 3 233

Capacity: 6 029 MW

Actual production: 16,6 TWh *

Annual production (estimated): 15,2 TWh **

Added capacity in 2016

1st quarter: 178 MW

2nd quarter: 131 MW

3rd quarter: 78 MW

4th quarter: 81 MW

Total: 468 MW

Decommissioned capacity during 2016

- 2 MW

Total by the end of 2016

Turbines: 3 384

Capacity: 6 495 MW

Annual production: 15,4 TWh *

Annual production (estimated): 16,7 TWh **



** Actual production is the real production and depends on wind conditions and when installations are made during the year.*

*** Estimated annual production is the annual production the turbines are expected to produce when in operation during a whole year with normal wind conditions.*

Installations in 2017

Total by the end of 2016

Turbines: 3 384

Capacity: 6 495 MW

Actual production: 15,4 TWh *

Annual production (estimated): 16,7 TWh **

Added capacity in 2017 (forecast)

1st quarter: 20 MW

2nd quarter: 0 MW

3rd quarter: 171 MW

4th quarter: 7 MW

Total: 198 MW



Total by the end of 2017 (forecast)

Turbines: 3 450

Capacity: 6 693 MW

Actual production: 16,9 TWh *

Annual production (estimated): 17,3 TWh **

** Actual production is the real production and depends on wind conditions and when installations are made during the year.*

*** Estimated annual production is the annual production the turbines are expected to produce when in operation during a whole year with normal wind conditions.*

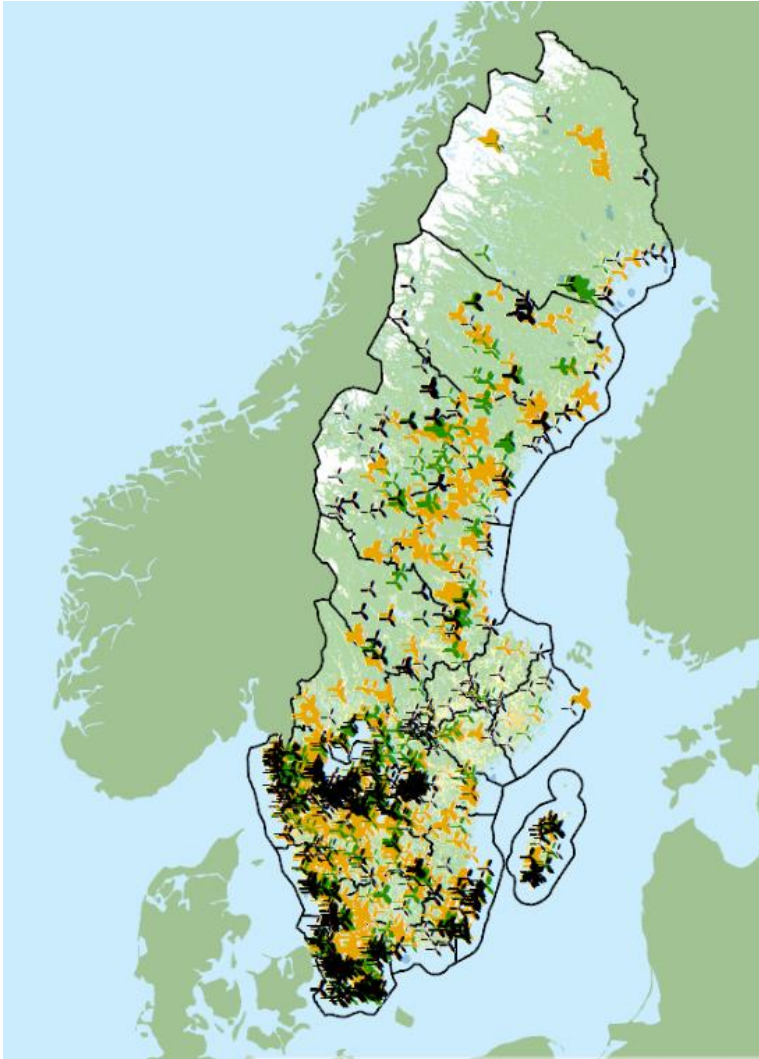
Project portfolio, status by 2016-12-31

| | In operation | Onshore | Offshore | Total | <i>Change Q3</i> |
|-----------|------------------------------|----------------|-----------------|--------------|------------------|
| | Wind turbines | 3 312 | 74 | 3 384 | (+21) |
| | Capacity (MW) | 6 330 | 190 | 6 495 | (+79) |
| * | Under construction | Onshore | Offshore | Total | |
| | Wind turbines | 154 | | 163 | (+43) |
| | Capacity (MW) | 517 | | 522 | (+192) |
| ** | Permitted | Onshore | Offshore | Total | |
| | Wind turbines | 2 838 | 503 | 3 341 | |
| | Capacity (MW) | 8 778 | 2 267 | 11 045 | |
| ** | In permission process | Onshore | Offshore | Total | |
| | Wind turbines | 2 817 | 275 | 3 092 | |
| | Capacity (MW) | 8 233 | 925 | 9 158 | |

* Firm and unconditional turbine order based on investment decisions

** Estimations

Geographical spread



Installed

— In operation

Approved

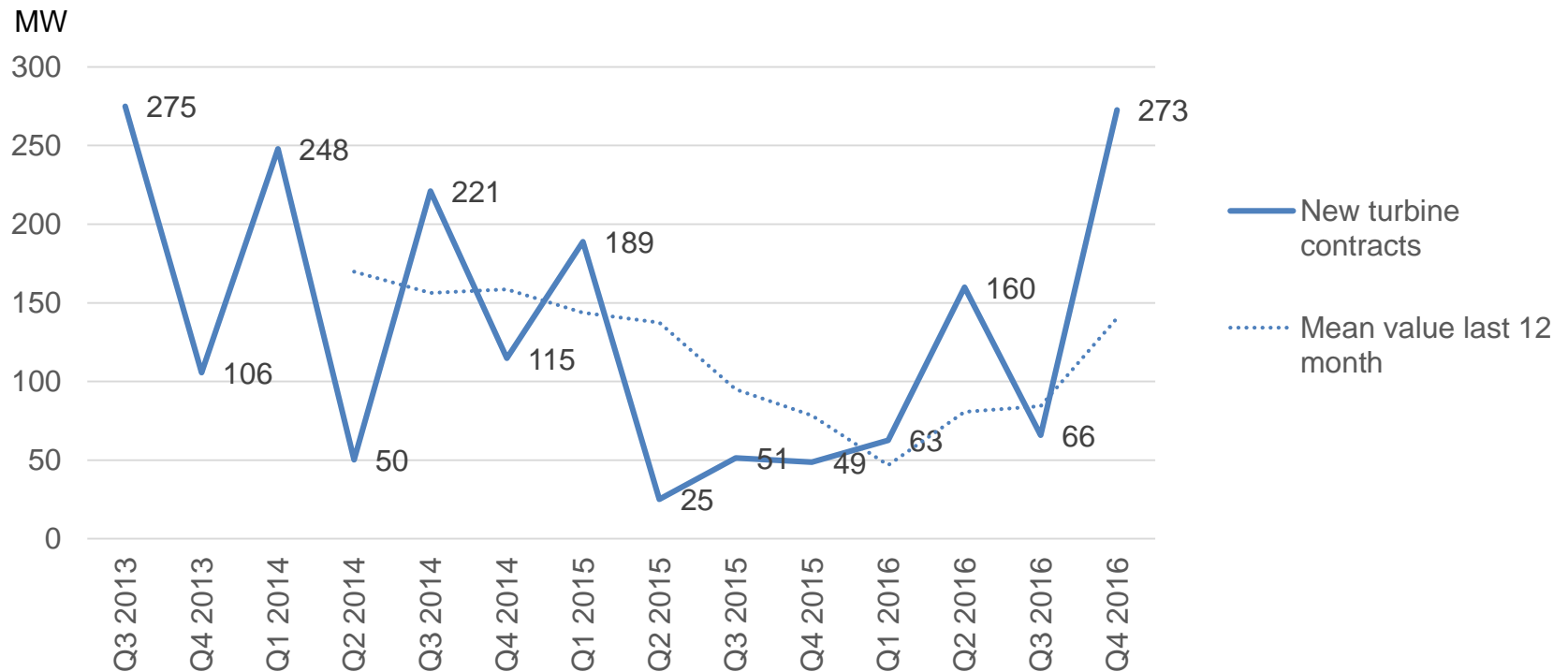
— Permitted

In process

— In permitting process

Source: Vindbrukskollen

New turbine contracts (firm and binding)



* Figures from all turbine manufacturers acting on the Swedish market

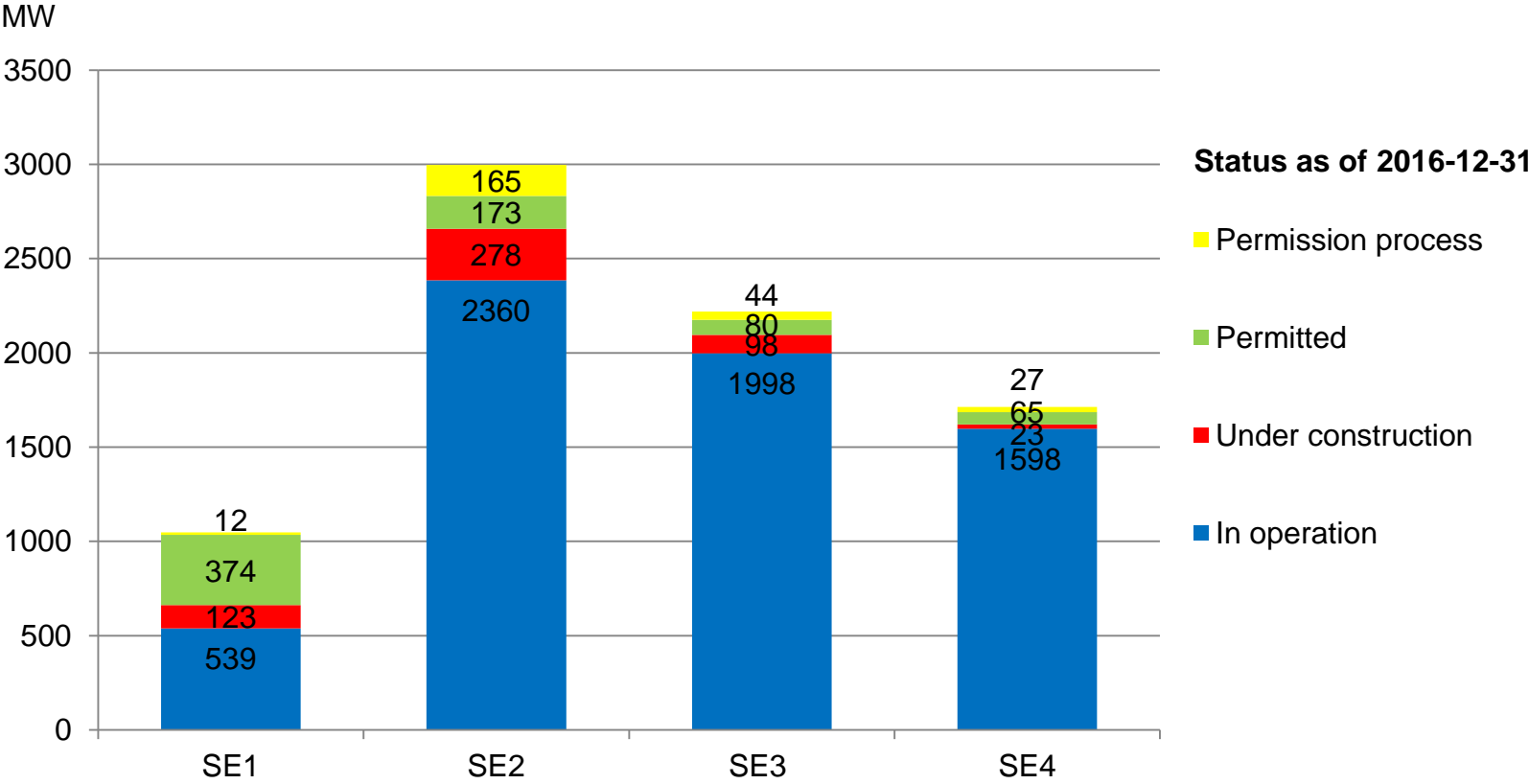
Order books

Time plan according to turbine manufacturers for wind power installations during year(MW) *

| 2016 | 2017 Q1 | 2017 Q2 | 2017 Q3 | 2017 Q4 | 2017 (Tot) | 2018 |
|------|------------|------------|------------|------------|---------------|------|
| 468 | 20 | 0 | 171 | 7 | 198 | 316 |

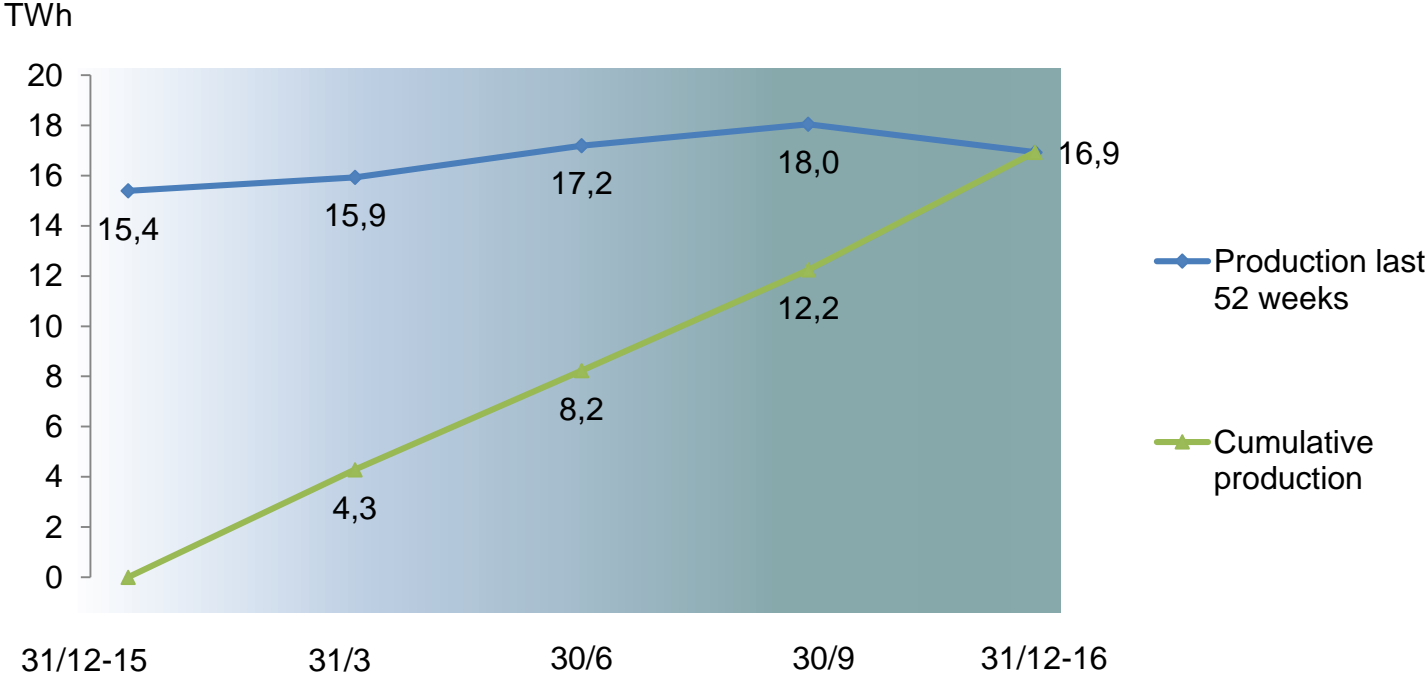
* Figures from all turbine manufacturers acting on the Swedish market

Installed capacity by pricing area (base case)



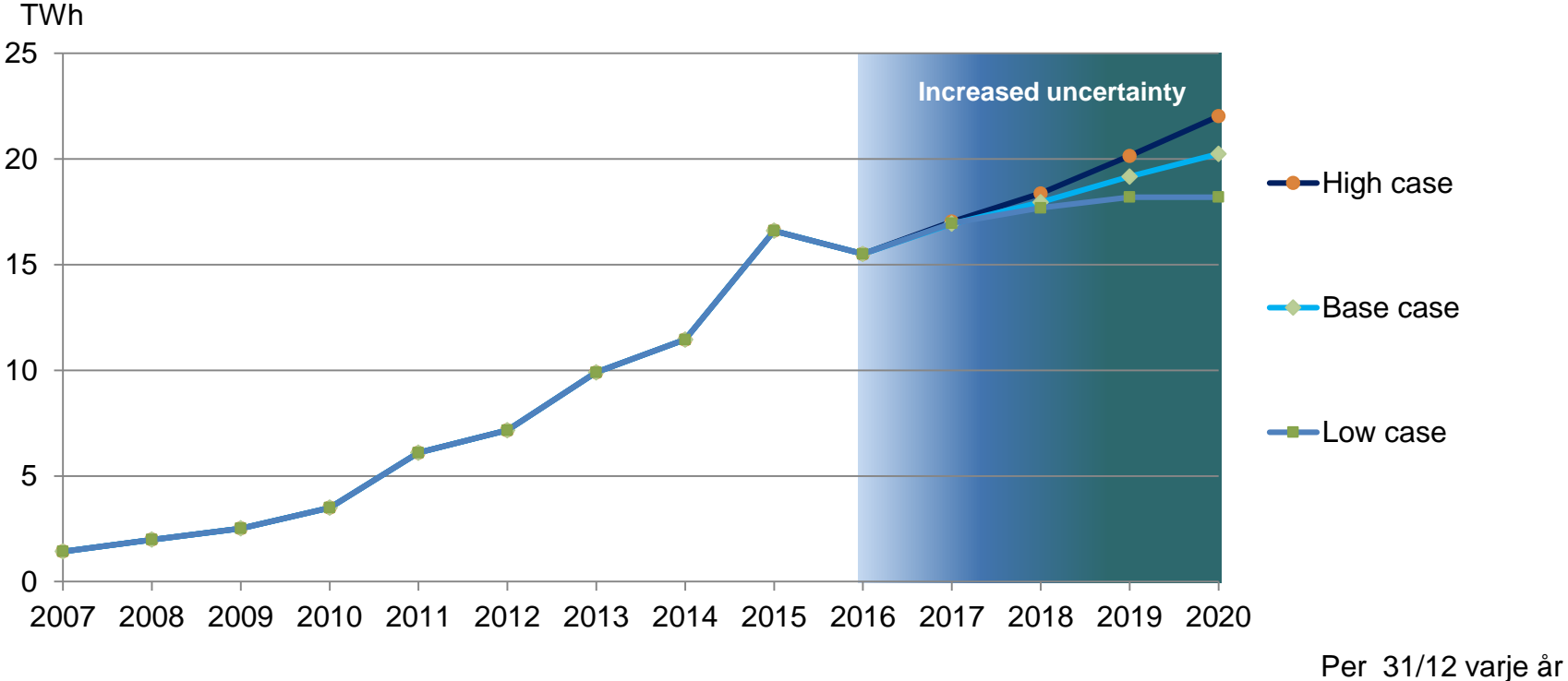
Wind power production 2016 (forecast)

Actual and forecast



Wind power production – different scenarios

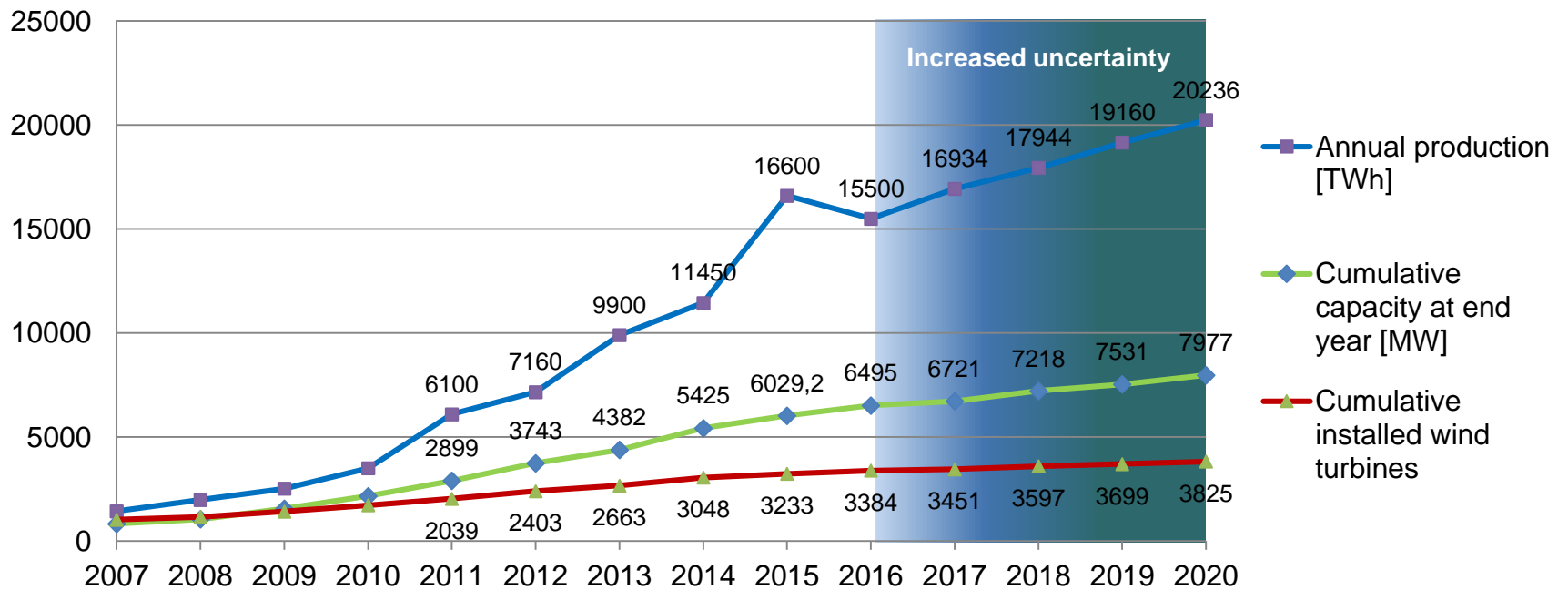
Actual and forecast



Base case

This scenario is the most realistic and official forecast of Svensk Vindenergi

Actual and forecast



As of 31/12

Assumptions

Part of wind power project portfolio capacity expected to be realized within given time frame depending on scenario (approximate figures)

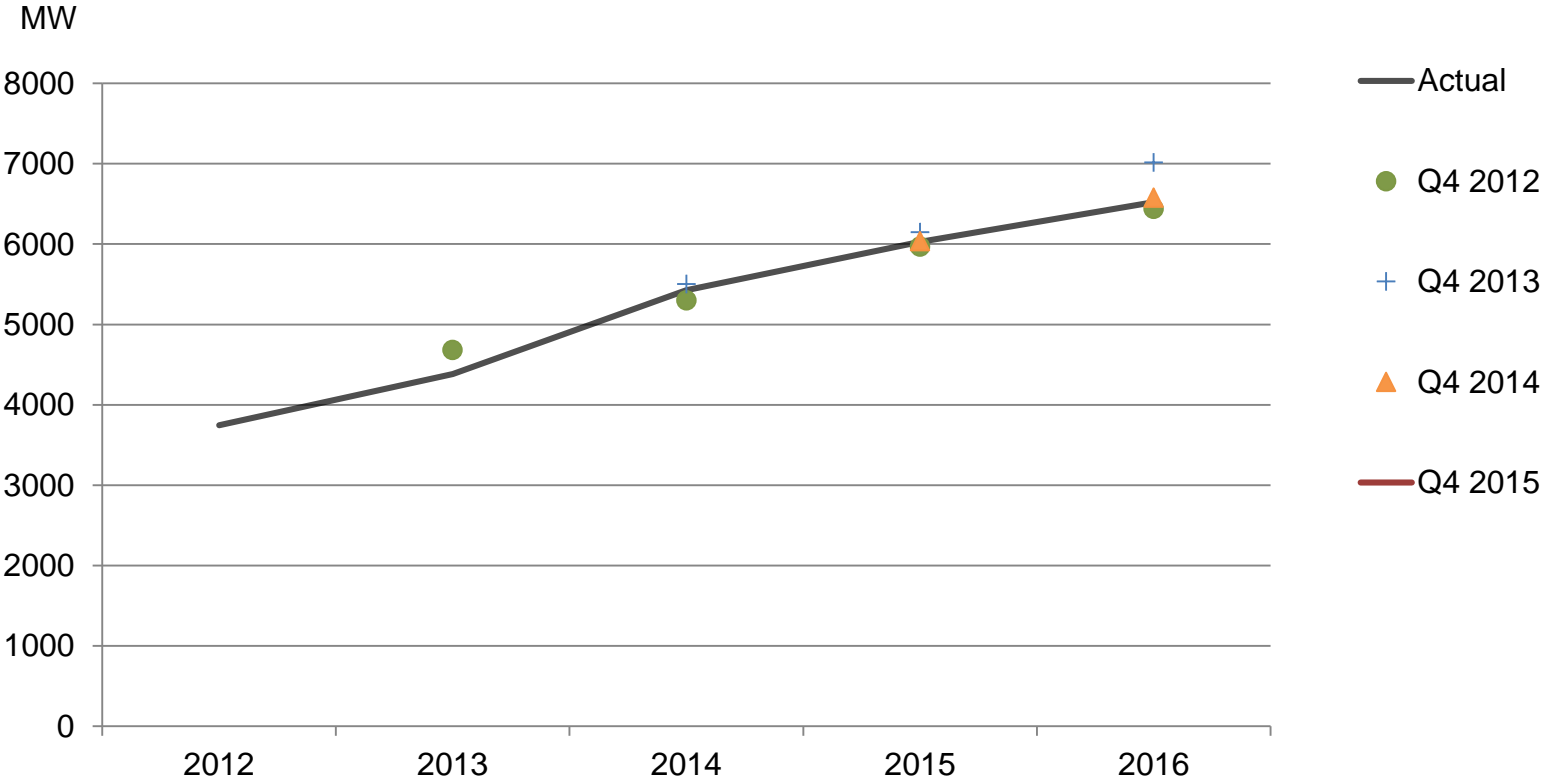
| Status | High | Base ** | Low |
|-------------------------|-------|---------|------|
| Under construction | 100 % | 100 % | 95 % |
| Permitted * | 15 % | 10 % | 0 % |
| In permission process * | 10 % | 5 % | 0 % |

* Only onshore wind power are expected to be built.

** The base case reflects a possible scenario based on an assessment of current and future market conditions.

Follow up

Previous forecasts and actual installed wind power capacity



Follow up

Previous forecasts and actual wind power production

