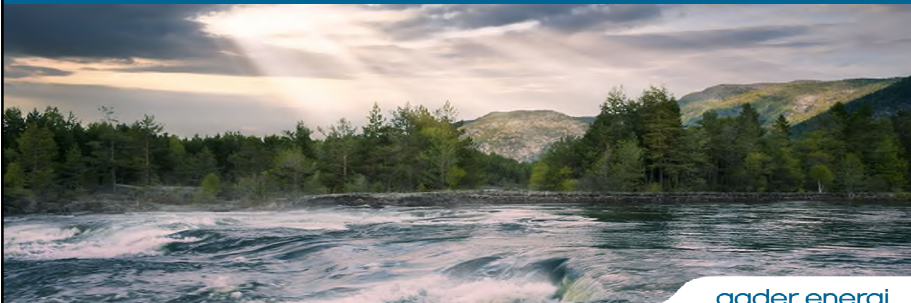



Update from the Market: Volumes and Prices

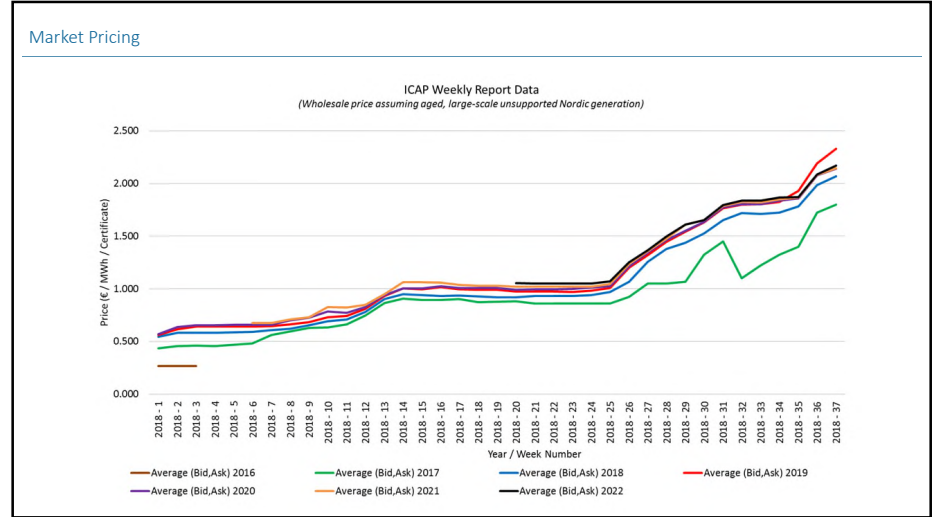
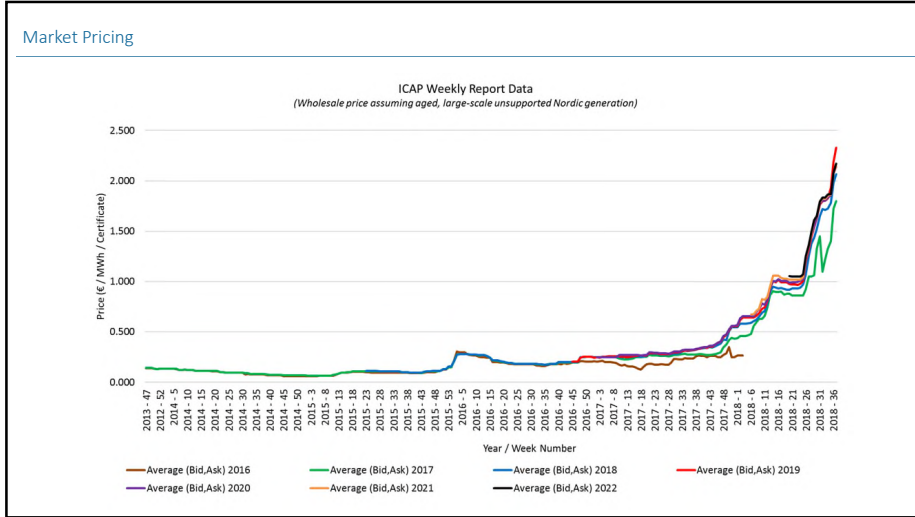
AIB Open Market Committee 2018: Madrid, September 2018

William Dixon, Agder Energi

### Agenda

1	Market Pricing
2	Market Demand
3	Market Supply
4	Nordic Power Prices & Storage Levels
5	EECS Statistics Update
6	Other Nations
7	Conclusions



Market Demand



Market Demand



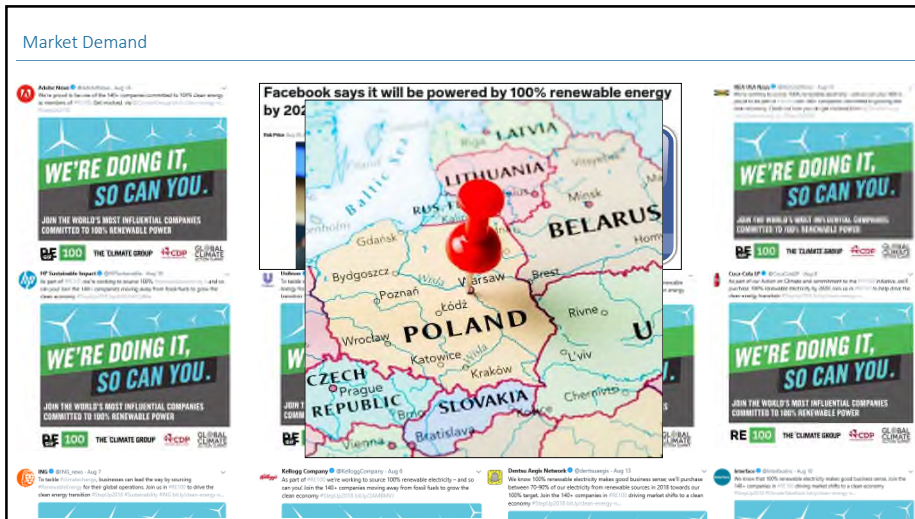
Market Demand



Market Demand



### Market Demand



Facebook says it will be powered by 100% renewable energy by 2020

WE'RE DOING IT, SO CAN YOU. JOIN THE WORLD'S MOST INFLUENTIAL COMPANIES COMMITTED TO 100% RENEWABLE POWER

### Market Supply

**Green Certificates (Guarantees of Origin):**  
 GO Hydro prices continue surging north on the back of strong demand, limited offers, and still dry weather forecast in Scandinavia. The hydro balance is now around -33 TWh below normal balance in Scandinavia (incl Finland), 2018 GO Nordic Hydro traded 1.255, 2019 GO Nordic Hydro at 1.31, 2020 GO Wind traded at 1.55, while 2018 GO EU Wind traded 1.60 this week. The rapid price hike is starting to affect the liquidity in the GO market.

Product	Bid	Ask	Last
Nordic/EU			
Hydro-17(Q4)	1.00	1.10	0.92
Hydro-18	1.23	1.25	1.235
Hydro-19	1.30	1.34	1.31
Hydro-20	1.31	1.38	-
Hydro-21	1.31	1.40	-
Hydro-22	1.31	1.42	-

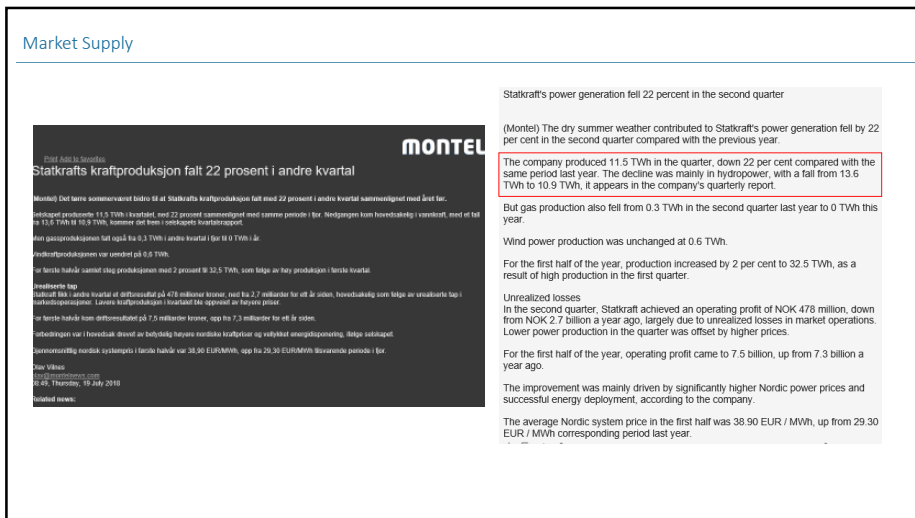
\*All prices €/MWh

**Green Certificates (Guarantees of Origin):**  
 GO Hydro prices continued heading north, as the critical weather situation continues and sellers are pulling back. 2018 GO Nordic Hydro traded last between 1.39 and 1.42, 2019 GO Nordic Hydro jumped from 1.48 to 1.55 in small volumes during the week. 2020 GO Hydro prices is also in the mid 1.50s.

Product	Bid	Ask	Last
Nordic/EU			
Hydro-17(Q4)	1.03	1.10	1.05
Hydro-18	1.39	1.45	1.39
Hydro-19	1.50	1.55	1.55
Hydro-20	1.50	1.60	-
Hydro-21	1.52	1.70	-
Hydro-22	1.52	1.70	-

\*All prices €/MWh

### Market Supply



Statkraft's power generation fell 22 percent in the second quarter

(Montel) The dry summer weather contributed to Statkraft's power generation fell by 22 per cent in the second quarter compared with the previous year.

The company produced 11.5 TWh in the quarter, down 22 per cent compared with the same period last year. The decline was mainly in hydropower, with a fall from 13.6 TWh to 10.9 TWh, it appears in the company's quarterly report.

But gas production also fell from 0.3 TWh in the second quarter last year to 0 TWh this year.

Wind power production was unchanged at 0.6 TWh.

For the first half of the year, production increased by 2 per cent to 32.5 TWh, as a result of high production in the first quarter.

Unrealized losses

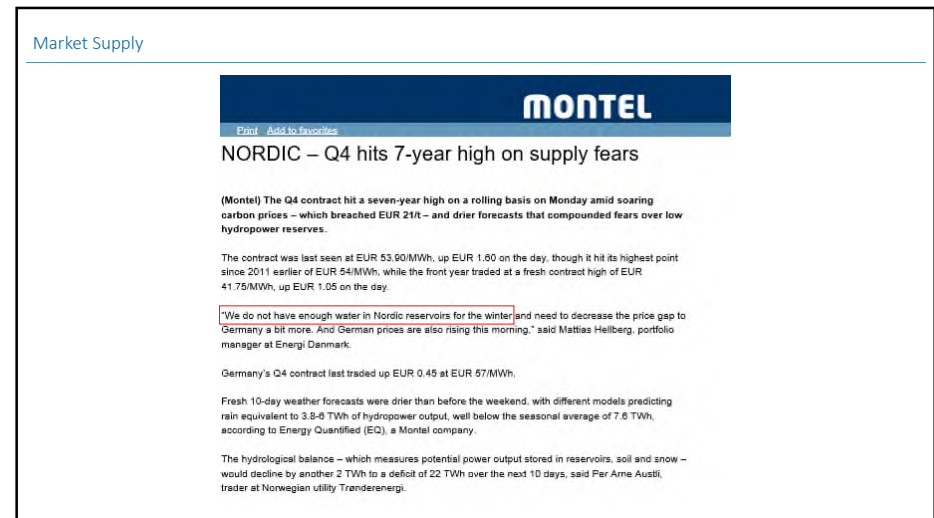
In the second quarter, Statkraft achieved an operating profit of NOK 478 million, down from NOK 2.7 billion a year ago, largely due to unrealized losses in market operations. Lower power production in the quarter was offset by higher prices.

For the first half of the year, operating profit came to 7.5 billion, up from 7.3 billion a year ago.

The improvement was mainly driven by significantly higher Nordic power prices and successful energy deployment, according to the company.

The average Nordic system price in the first half was 38.90 EUR / MWh, up from 29.30 EUR / MWh corresponding period last year.

### Market Supply



**MONTEL**

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## NORDIC – Q4 hits 7-year high on supply fears

(Montel) The Q4 contract hit a seven-year high on a rolling basis on Monday amid soaring carbon prices – which breached EUR 21/t – and drier forecasts that compounded fears over low hydropower reserves.

The contract was last seen at EUR 55.60/MWh, up EUR 1.60 on the day, though it hit its highest point since 2011 earlier of EUR 54/MWh, while the front year traded at a fresh contract high of EUR 41.75/MWh, up EUR 1.05 on the day.

"We do not have enough water in Nordic reservoirs for the winter and need to decrease the price gap to Germany a bit more. And German prices are also rising this morning," said Mattias Hellberg, portfolio manager at Energi Danmark.

Germany's Q4 contract last traded up EUR 0.45 at EUR 57/MWh.

Fresh 10-day weather forecasts were drier than before the weekend, with different models predicting rain equivalent to 3.8-8 TWh of hydropower output, well below the seasonal average of 7.6 TWh, according to Energy Quantified (EQ), a Montel company.

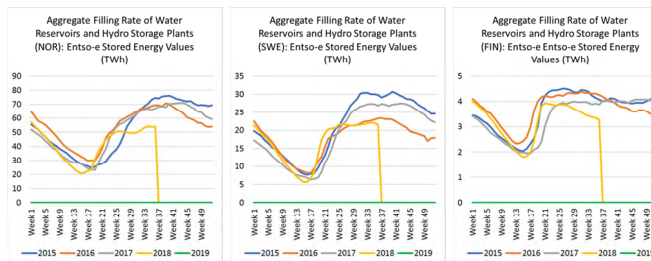
The hydrological balance – which measures potential power output stored in reservoirs, soil and snow – would decline by another 2 TWh to a deficit of 22 TWh over the next 10 days, said Per Arne Austli, trader at Norwegian utility Trønderenergi.

Nordic Power Prices & Storage Levels

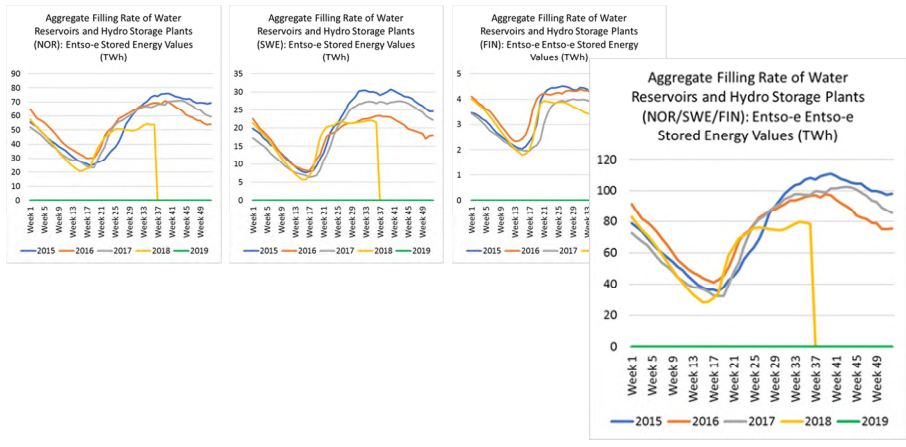
Baseload system spot price NP (€)	July-13	July-14	July-15	July-16	July-17	July-18
	33,81	28,52	9,55	25,32	26,37	53,01



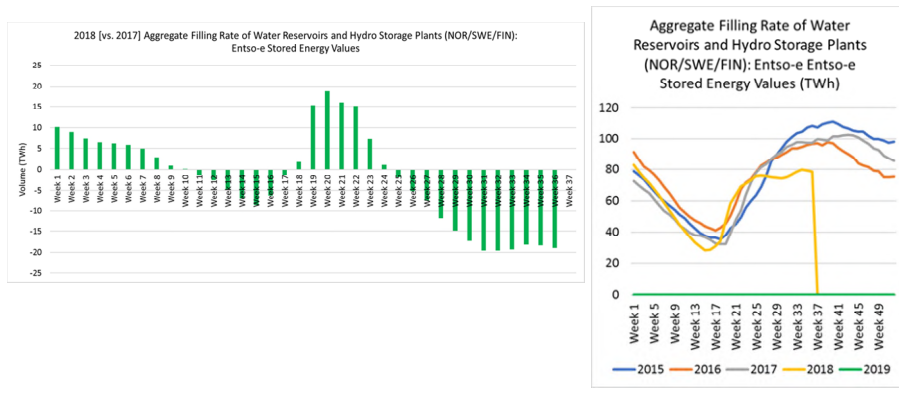
Nordic Power Prices & Storage Levels



Nordic Power Prices & Storage Levels



Nordic Power Prices & Storage Levels



Nordic Power Prices & Storage Levels

## MONTEL

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**NORDIC – Traders eye strong September on dry weather**

(Montel) **Nordic** power for September hit a new contract high of EUR 58.00/MWh on Wednesday, up EUR 0.85 on the day, driven mainly by very dry weather forecasts.

"It is all very bullish at the moment. The main reason is the dry weather forecasts, but we also have low nuclear availability and carbon and coal prices remain strong," said Lauri Riihimäki, trading manager at Finland's Enegia.

The Q4 contract was up EUR 0.75 at EUR 56.35/MWh on Nasdaq, extending the seven-year high for a rolling front quarter contract reached in the previous session.

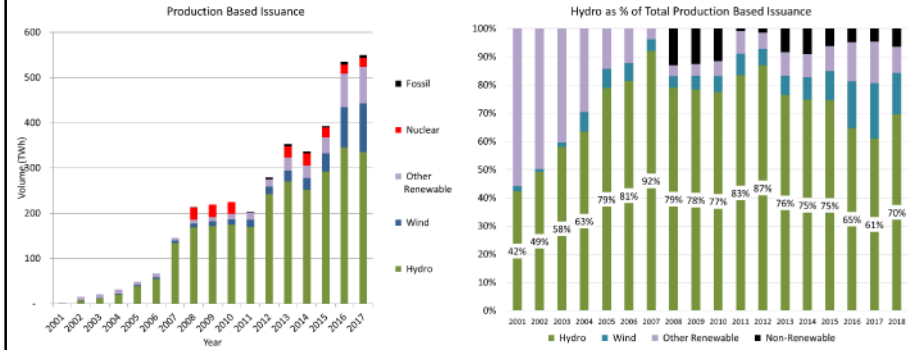
"With the dry forecasts we have today, there is no sign of an improvement to the hydrological balance. Therefore **Nordic** prices have to adjust up towards German price levels [to attract imports]," said Haakon Knudstad, trader at Norwegian utility BKK.

The German Q4 baseload contract was last seen at EUR 57.80/MWh, up EUR 0.39, on the EEX.

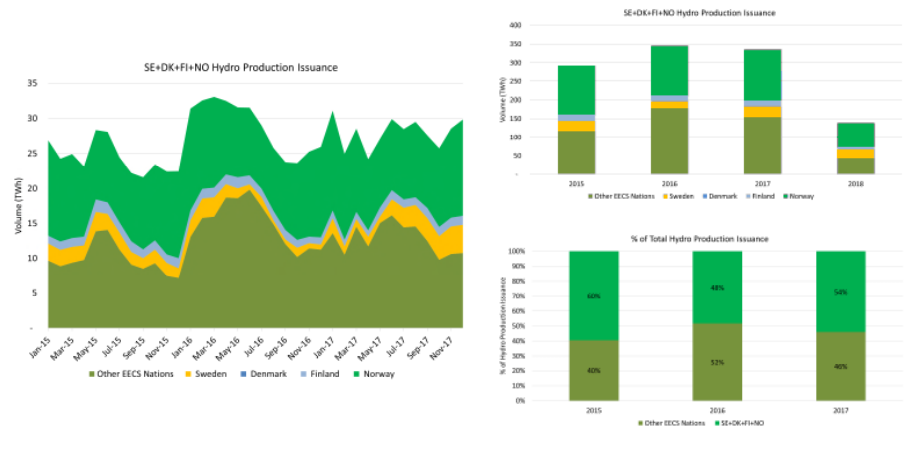
**Nordic** hydropower reservoirs currently contain 21 TWh less than normal. And it is just seven weeks before reservoir levels normally start falling due to the onset of snow.

Norwegian TSO Statnett **warned** on Tuesday that reservoir levels could reach historic lows this winter.

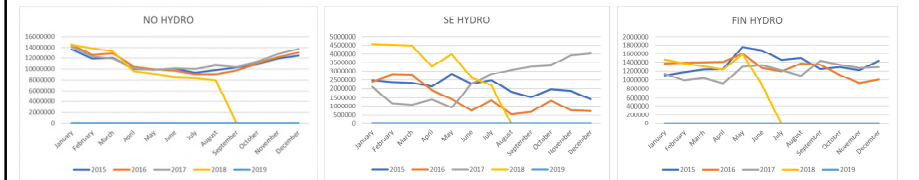
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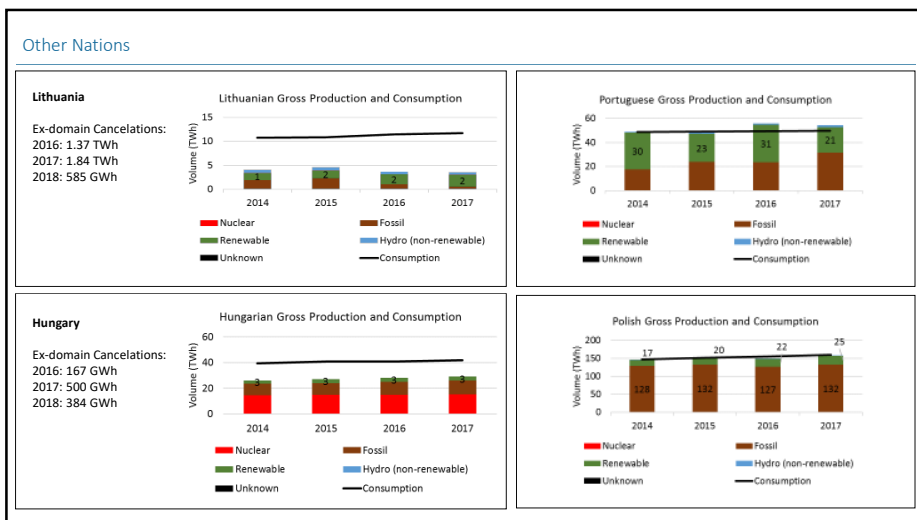
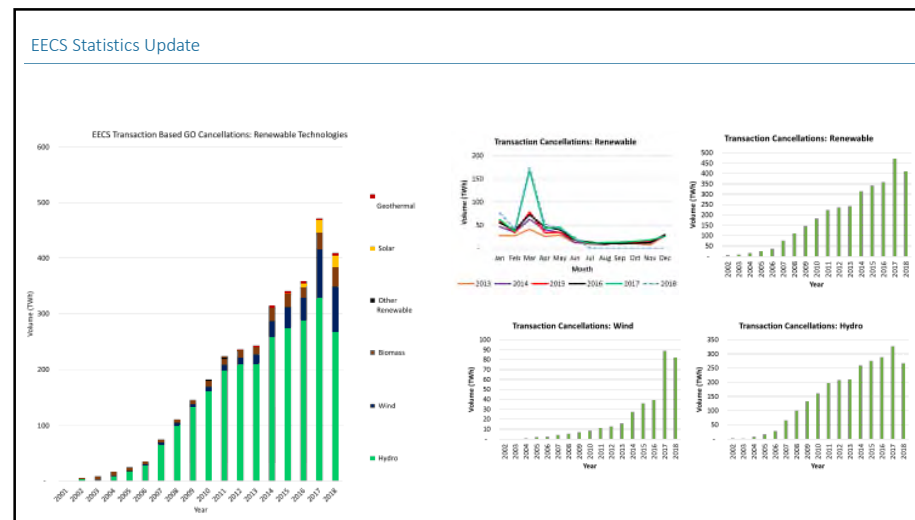
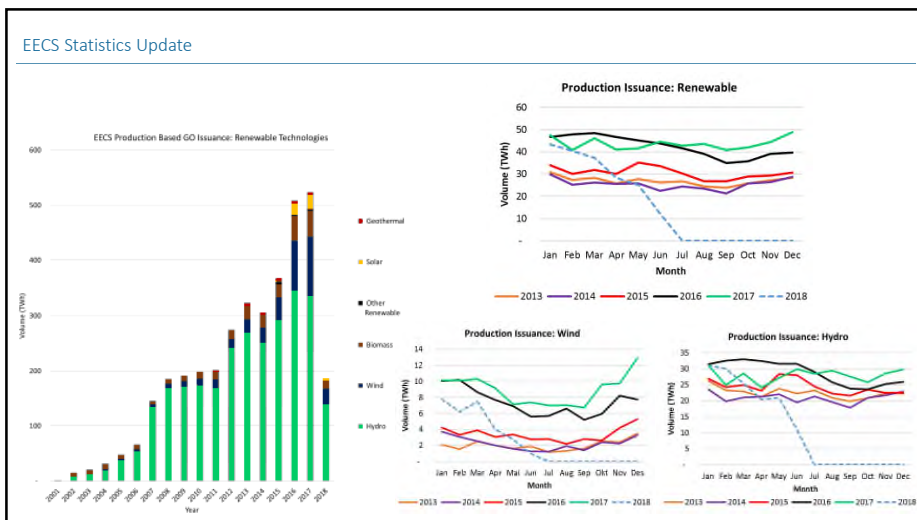


EECS Statistics Update



EECS Statistics Update





### Publishing Statistics

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## Conclusions

- An increase in demand and cancellations
- A reduction in supply levels vs. previous years
  - Biomass cancellations are up
  - Nuclear issuance is up
- Weather conditions of 2018 are affecting the Nordic hydro balance
  - Q4 2018 hydro storage levels are low which could impact 2019 production forecasts
  - 2019 has another year of demand to arrive

## Conclusions

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