Energy projections in the near-to mid-term: will winter 2023/24 see an even bigger crisis?

Montel Iberia Energy Day 2022
Ana Barillas – Head of Iberia
November 2022
Aurora provides market leading forecasts & data-driven intelligence for the global energy transition

About Aurora

8 Offices
Oxford | Berlin | Madrid | Athens | Paris | Sydney | Austin | Oakland

330+ market experts

600+ subscribing companies

120+ transactions supported in 2021

Regular detailed coverage
Analytics on demand

Power markets
Renewables
Storage
Electric vehicles
Hydrogen
Carbon
Natural gas

United States
Europe
Japan
Australia

Source: Aurora Energy Research
We are working with key Iberian and international utilities, investors, lenders, developers and government
I. Year in review – European energy prices
   1. Gas and electricity prices
   2. Hydro generation
   3. French nuclear
   4. Natural gas

II. Near-term price drivers in Iberia
   1. Iberian regulatory measures
   2. Europe-wide measures
   3. Continued renewable growth
European energy prices have risen to record highs in recent months, largely driven by Russia weaponising and withholding supplies

### Wholesale gas and baseload electricity prices

**EUR/MWh (nominal)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Gas Price</th>
<th>Electricity Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018-2020</td>
<td>43</td>
<td>-191.1%</td>
</tr>
<tr>
<td>2021</td>
<td>110</td>
<td>+151.9%</td>
</tr>
<tr>
<td>2022 YTD</td>
<td>134</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1) Monthly average prices shown are estimated based on daily prices up to October 2022.
2) Average wholesale yearly price in Germany, France and Italy.
3) Average wholesale yearly price for TTF.

**Sources:** Aurora Energy Research, Energy-Charts, EIKON, EVA Inc., IEA

### Avg. wholesale gas and electricity prices

**EUR/MWh (nominal)**

- **Aug 2022:** Nord Stream 1 was shut down indefinitely for ‘maintenance’
- **Feb 2022:** Russia invades Ukraine resulting in international sanctions and fears supplies might be disrupted
- **Jan 2022:** Cold winter weather in Europe driving up gas demand in combination with reduced LNG flows due to increased gas demand in Northern Asia

- **Following the ongoing Russian-Ukrainian war and spreading geo-political tensions, gas and power prices across Europe have risen to unprecedented levels**

- **Reductions in supply of gas by Russia have significantly increased gas prices, and in turn power prices due to the fact that gas generators are often price setting in power markets**

- **A reduction in the availability of hydro across Europe and nuclear in France has also increased demand for gas for power generation, further pushing up both power and gas prices**

- **Since 2021 gas prices have increased by close to 200%, while power prices rose 152%**

- **From July to October, gas prices have decreased ~ 62%**
Hydropower – Europe’s largest renewable generation source in 2021 has been impacted hugely by a drought this year

Drought conditions in 2022 have led to higher thermal generation and power prices across Europe. It would require above-average rainfalls in the coming months to refill reservoirs to normal winter levels.

Iberian peninsula
- Spain and Portugal water levels are 33% and 52% lower than the historical average. Generation is below the 6-year historical band.

France and Italy
- France and Italy, with 26 and 23 GW of installed hydropower, have seen water levels 14% and 40% below the historical average.

Nordics
- South Norway has had lower water levels for years. Higher water levels from the North cannot be exported due to grid constraints.

Sources: Aurora Energy Research
French nuclear availability is at an all-time low while the recovery of the fleet for the coming winter is still uncertain

- Over the past decade, nuclear power in France has met around 70% of French power demand and contributed to consistent electricity exports from France of around 50 TWh.
- On the 21st of September 2022, the nuclear capacity available was 34% lower than the average historical value.
- EDF's public announcements do not seem to follow their latest REMIT availability forecast nor RTE’s (TSO) assessment, adding uncertainty to the potential capacity available during the winter.
- Lack of nuclear capacity leads to more expensive thermal generation. Uncertainty around winter temperatures, nuclear output, and demand reduction has led traders to price in risk of loss of load during winter months.

Sources: EDF, RTE, Aurora Energy Research
European gas prices have increased since mid-2021, reaching record levels in August 2022; spread to MIBGAS has also increased

- The European benchmark TTF averaged 190.2 EUR/MWh in Aug-22, down 19% from the record high in Aug-22. MIBGAS traded at a steep discount to TTF due to high LNG regasification capacity in conjunction with export bottlenecks.

- The halt of flows through NS1 from 31 Aug-22 lifted European gas prices above 300 EUR/MWh in late August. An explosion in both lines of NS1 on 26 Sep-22 makes the return of any flows via NS1 very unlikely for a couple of winters.

- Prices could remain exceptionally high considering the following:
  1. Risk of further Russian supply disruption
  2. Global competition with NE Asia to secure LNG cargoes ahead of winter
  3. Risk of Norwegian supply disruptions due to maintenance
  4. Cold winter outlook

Sources: Aurora Energy Research, Refinitiv

1) Monthly average of daily DA prices. 2) Since Jun-22 Spain has incorporated a price cap on gas-for-power use.
High gas prices have cut into NWE industrial and power demand, but the Iberian price cap has led to higher consumption in Iberia

- The high gas price environment has led to industrial demand destruction and gas-to-coal fuel switching across Europe
- Cumulative gas demand in NW Europe was 24 bcm (-13%) lower in Jan-Sep 22 than in Jan-Sep 21, driven by warm weather, industrial demand destruction and gas-to-coal switching
- Germany (-10 bcm) and the Netherlands (-5.6 bcm) led the NWE demand reduction, followed by the UK (-5 bcm) and Belgium (-1.7 bcm). France had the lowest regional reduction (-1.5 bcm) due to low nuclear availability driving high power-sector gas burn
- Gas consumption in Southern Europe for the same period fell by only -0.8 bcm (-1%), as demand destruction in Italy (-1.9 bcm) was countered by higher consumption in Spain (+1 bcm) and Portugal (+0.1 bcm)

Sources: Aurora Energy Research, JODI-GAS, Refinitiv

1) Belgium, France, Germany, the Netherlands and UK. 2) Spain, Italy and Portugal. 3) Envelopes are calculated by taking the maximum and minimum monthly values from Dec-15 to Feb-20 (up until the start of the global pandemic)
European stocks entered winter 2022-2023 at 90% of capacity, well ahead of Oct-22 targets and above five-year average

- Despite European inventories entering Winter 2021-2022 at only 75% of storage capacity, low Q1 2022 consumption due to warm weather and high prices led to March stocks ending above the five-year min-max envelope.
- Storage injections started as early as mid-March, compared to May of last year. Exceptionally high LNG sendout through Q2 2022 and NS1 operating at capacity until mid-June helped fill storages above the five-year average rate.
- The abandonment of Gazprom’s control over some European gas storages (~10% of total capacity) and the EC storage fill mandate (80% by 1 Nov-22) also helped fill storages fast.
- Europe started Winter 2022-2023 at 90% of storage capacity, with many countries hitting their targets well ahead of time.

Sources: Aurora Energy Research EOS, AGSI
Agenda

I. Year in review – European energy prices
   1. Gas and electricity prices
   2. Hydro generation
   3. French nuclear
   4. Natural gas

II. Near-term price drivers in Iberia
   1. Iberian regulatory measures
   2. Europe-wide measures
   3. Continued renewable growth
While current storage levels will help mitigate the risk during the winter of 2022/2023, prices during next winter will depend on several factors.

II. Near-term price drivers in Iberia

Storage margin\(^1\) days

<table>
<thead>
<tr>
<th>Month</th>
<th>Belgium</th>
<th>Netherlands</th>
<th>France</th>
<th>Great Britain(^2)</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct-21</td>
<td>12</td>
<td>16</td>
<td>18</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>Nov-21</td>
<td>20</td>
<td>22</td>
<td>23</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Dec-21</td>
<td>23</td>
<td>21</td>
<td>20</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Jan-22</td>
<td>44</td>
<td>41</td>
<td>40</td>
<td>37</td>
<td>38</td>
</tr>
<tr>
<td>Feb-22</td>
<td>37</td>
<td>38</td>
<td>37</td>
<td>38</td>
<td>35</td>
</tr>
<tr>
<td>Mar-22</td>
<td>37</td>
<td>38</td>
<td>37</td>
<td>38</td>
<td>35</td>
</tr>
<tr>
<td>Apr-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>May-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Jun-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Jul-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Aug-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Sep-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Oct-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
</tbody>
</table>

Share of gas supply\(^3\) %

<table>
<thead>
<tr>
<th>Month</th>
<th>Belgium</th>
<th>Netherlands</th>
<th>France</th>
<th>Great Britain(^2)</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct-21</td>
<td>12</td>
<td>16</td>
<td>18</td>
<td>29</td>
<td>25</td>
</tr>
<tr>
<td>Nov-21</td>
<td>20</td>
<td>22</td>
<td>23</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Dec-21</td>
<td>23</td>
<td>21</td>
<td>20</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Jan-22</td>
<td>44</td>
<td>41</td>
<td>40</td>
<td>37</td>
<td>38</td>
</tr>
<tr>
<td>Feb-22</td>
<td>37</td>
<td>38</td>
<td>37</td>
<td>38</td>
<td>35</td>
</tr>
<tr>
<td>Mar-22</td>
<td>37</td>
<td>38</td>
<td>37</td>
<td>38</td>
<td>35</td>
</tr>
<tr>
<td>Apr-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>May-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Jun-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Jul-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Aug-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Sep-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
<tr>
<td>Oct-22</td>
<td>38</td>
<td>39</td>
<td>36</td>
<td>38</td>
<td>34</td>
</tr>
</tbody>
</table>

2023 and 2024 market prices will depend on the interaction of several drivers:

- **Meteorology**
  - Winter temperatures
  - Hydro reservoir levels

- **Demand**
  - Global gas demand affecting LNG prices

- **Regulation**
  - Iberian regulatory measures
  - Europe-wide mechanisms

- **Supply-side factors**
  - European gas production
  - French nuclear availability
  - Continued renewable growth

---

1) Days of demand in-store are defined as the number of days that storage inventories could potentially solely satisfy consumption, all contractual constraints left aside. Historical (2016-2021) annual consumption for each country per day has been considered as demand. 2) Since Sep-22, Great Britain has included Rough storage but at a limited capacity (0.7 bcm) 3) Excluding storage withdrawals/injections. 2) LNG reflects sendout to the high-pressure network. 3) Russian pipeline supply includes direct imports via N51 and Yamal-Europe and is not exhaustive.

II. Near-term price drivers in Iberia

1. The Iberian market is, for now, isolated from the direct impact of wholesale gas prices thanks to the “cap on gas” or “Iberian exception”

RDL 10/2022 (Spain) and DL 33/2022 (Portugal) Journey

The proposed cap on the gas price was implemented on the 15th June 2022 after the European Commission final approval

26th March: Spain and Portugal receive green light to start working on a proposal

1 month

Preparation and submission of formal proposal

26th April: Spain and Portugal receive provisional authorisation, pending receipt of draft and national approval

13th May: RDL 10/2022 approved in Spain and DL 33/2022 approved in Portugal

8th June: Formal approval from European Commission

15th June: Implementation by Spain and Portugal

Key parameters of the mechanism

The adjustment value is calculated taking into account the difference between the MIBGAS price and the reference price:

\[ Y_i = \frac{(P_{GN} - P_{RGN})}{0.55} \]

- \( Y_i \) (€/MWh): Daily adjustment value
- \( P_{GN} \) (€/MWh): Average MIBGAS daily price
- \( P_{RGN} \) (€/MWh): Gas reference price, initially set at 40€/MWh
- 0.55 is the efficiency of a standard CCGT plant

Duration

- The mechanism will be in force until 31/05/2023
- During the first six months, the capped price will be 40€/MWh, increasing by 5€/MWh per month for the remaining months

Funding the mechanism

- The cost of the adjustment mechanism is distributed across unhedged demand bids

1) Portugal approved the same mechanism in Decree Law 33/2022 on the same day. 2) Impuesto sobre el Valor de la Producción de Energía Eléctrica. 3) Projects already in the EIA process when the promulgation of the RDL will not be affected by this change. 4) Period set by RD 1183/2020. 5) Modification aims to avoid double sanction, i.e., a cancellation of permits on top of the penalties from not complying with grid auction deadlines.
At its peak, the Iberia gas price cap resulted in power prices clearing at about half of other European benchmarks.

EU monthly wholesale electricity prices
EUR/MWh (nominal)

1) Values updated until 10th August; 2) Portuguese power prices are extremely similar to the Spanish ones and not represented on this graph.

Sources: Aurora Energy Research, OMIE.
Gas prices would increase by more than 100% if the gas price cap is phased out, and will average 88 EUR/MWh in the second half of 2024.

The cap on gas prices is currently in place until the end of May-2023, leading to prices below 70 EUR/MWh.

Without the cap in place, gas prices could increase by more than 100%, with an average of 130 EUR/MWh between June-2023 and March-2024.

After the winter 2023/2024, gas prices are expected to decrease, averaging 88 EUR/MWh in the second half of the year 2024 (July to December).

Sources: Aurora Energy Research
2 So far, three of the initial five Commission proposals to address surging power and gas prices have been adopted by Member States

- **Applicable for Spain**
  - **1. Coordinated Demand Reduction**
    - Aims to achieve a 10% overall reduction in power demand by Mar 2023, including a mandatory 5% reduction in peak power demand. Main instruments to achieve demand reduction could include demand reduction tenders implemented by some member states in the gas sector.
  
  - **2. Revenue cap for inframarginal technologies**
    - Implementation of a revenue cap for inframarginal technologies (i.e., non-price setting technologies) until June 2023; mandatory for all member states. Cap would apply to electricity market revenues for all inframarginal generators but is optional for balancing markets.

- **Applicable for Spain**
  - **3. Fossil fuel solidarity contributions**
    - Mandatory temporary tax on the profits of fossil fuel companies, from FY 2022 and/or 2023, above a 20% average increase of profits generated from the four fiscal years after 1 Jan 2018, will contribute towards a solidarity payment that should go towards supporting vulnerable households and hard hit businesses.

- **Energy utilities support measures**
  - Volatility in energy prices has caused energy utilities to have large quantities of capital tied up in the form of collateral, increasing their risk of insolvency. Sweden, Finland, Denmark, and other countries have reactively put in place collateral loans and guarantees worth over EUR 46 billion but there has not been a unified recommendation from EU energy ministers yet.

- **Price cap on Russian/all gas imports**
  - Aims to reduce the cost of high wholesale gas market prices for European consumers as well as Russian gas export revenues that might be used to finance the war in Ukraine, without compromising gas supply.

- **Confirmed in 30 September 2022 energy minister meeting**
  - ✔ Potentially lower prices during peak hours, preserves fuel reserves for industrial sector
  - ✗ Significant societal coordination to implement

- **Remains under consideration**
  - ✔ Does not affect price formation in wholesale markets, so bidding behaviour is preserved
  - ✗ Introduces regulatory risk into PPA and futures transactions, potentially reducing volumes

- **Directly benefits households and funds can be used to develop domestic renewables sources**
  - ✔ Maintains liquidity of derivatives and futures markets
  - ✔ Governments are the last line of support
  - ✔ Lower short term household and industry bills
  - ✗ Limits market price signals which discourages LNG flows into Europe and does not incentivise gas demand reduction

Sources: Aurora Energy Research, European Commission, Valtioneuvosto, Reuters

1) PPA backed assets may be subject to the cap if associated payments exceed national price cap (which is unlikely for most older contracts).
2) Exceptions are plants that have higher marginal costs than the revenue cap, plants that use technologies that substitute gas (bio-methane), demonstration plants, and plants’ revenues that have already been capped by CfDs or FiTs
The EC has proposed a “safety price ceiling” on the month-ahead TTF derivatives

The TTF emerged in the past years as the reference benchmark trusted by the market

- The European Commission proposed on 22nd November 2022 a gas price cap on the Dutch exchange that serves as Europe’s gas price benchmark
- The proposed instrument consists of what has been called a “safety price ceiling” of 275 €/MWh and would be triggered automatically when both of the following conditions are met:
  1. The front-month TTF derivate settlement price exceeds 275€/MWh for two weeks;
  2. TTF prices are 58€/MWh higher than the LNG reference price (still to be determined) for 10 consecutive trading days within the two weeks
- If the mechanism is triggered, the Agency for the Cooperation of Energy Regulators (ACER) will immediately publish a market correction notice
- If approved by EU countries, this cap mechanism would be in place for one year from January 1st

The mechanism targets TTF month-ahead products to avoid affecting short-term market liquidity and security of supply

Due to its liquidity and transaction volume, TTF serves as an index for other hubs. An intervention in TTF is expected to affect transaction prices across the EU

- There will be constant monitoring of the mechanism by ESMA, ECB, ENTSO-E and ACER
- The mechanism can be suspended immediately at any time:
  - Automatically, with a deactivation, when its operation is no longer justified by the situation on the natural gas market;
  - By a Commission suspension decision when risks to the Union’s security of supply, to demand reduction efforts, to intra-EU flows of gas, or financial stability are identified
- Even if no de-activation conditions are triggered, the mechanism will be suspended after one year

Energy ministers from the EU will debate the measure on November 24th
As new renewable projects come online, an increasing share of generation will come from generation sources not exposed to fuel prices.

**Generation mix**

<table>
<thead>
<tr>
<th>Year</th>
<th>TWh</th>
<th>Interconnectors</th>
<th>Battery storage</th>
<th>DSR</th>
<th>Peaking</th>
<th>Hydro</th>
<th>Offshore wind</th>
<th>Solar PV</th>
<th>Solar CSP</th>
<th>Gas CCGT</th>
<th>Nuclear</th>
<th>Coal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>251</td>
<td>61</td>
<td>33</td>
<td>0</td>
<td>4</td>
<td>74</td>
<td>1</td>
<td>13</td>
<td>5</td>
<td>13</td>
<td>14</td>
<td>22</td>
</tr>
<tr>
<td>2023</td>
<td>256</td>
<td>65</td>
<td>35</td>
<td>0</td>
<td>4</td>
<td>74</td>
<td>1</td>
<td>14</td>
<td>6</td>
<td>14</td>
<td>16</td>
<td>22</td>
</tr>
<tr>
<td>2024</td>
<td>258</td>
<td>74</td>
<td>40</td>
<td>0</td>
<td>4</td>
<td>74</td>
<td>1</td>
<td>16</td>
<td>8</td>
<td>16</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>2025</td>
<td>261</td>
<td>80</td>
<td>46</td>
<td>0</td>
<td>4</td>
<td>74</td>
<td>1</td>
<td>18</td>
<td>9</td>
<td>17</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>2030</td>
<td>280</td>
<td>95</td>
<td>80</td>
<td>1</td>
<td>4</td>
<td>129</td>
<td>12</td>
<td>129</td>
<td>14</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>2040</td>
<td>338</td>
<td>129</td>
<td>129</td>
<td>12</td>
<td>14</td>
<td>149</td>
<td>168</td>
<td>168</td>
<td>168</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>2050</td>
<td>423</td>
<td>187</td>
<td>187</td>
<td>12</td>
<td>14</td>
<td>168</td>
<td>168</td>
<td>168</td>
<td>168</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>2060</td>
<td>491</td>
<td>228</td>
<td>228</td>
<td>14</td>
<td>168</td>
<td>168</td>
<td>168</td>
<td>168</td>
<td>168</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
</tbody>
</table>

**Share of renewables in the generation mix**

- Interconnectors: 51%
- Battery storage: 65%
- Other RES: 98%

1) Net imports. 2) Includes OCGTs, small gas peakers and existing oil peakers. As the capacity market rules are finalised, this might be replaced by carbon-free technologies. 3) Other RES includes biomass, renewable cogeneration, run-of-river, and hydro reservoir. 4) Includes solar rooftop PV, solar ground-mounted PV. 5) Other thermal includes fossil fueled cogeneration.
The impact of commodity prices on wholesale power prices will be counterbalanced by renewable deployment

Baseload prices\(^1\) vs Short Run Marginal Cost (SRMC) of CCGTs\(^2\)
EUR/MWh, real 2021

We expect prices to decline in the next 5 years as gas prices decrease; over the long term, renewables help offset increasing commodity prices

- \(2022\) - \(2030\)
  - Baseload prices decline in the early 2020s, due to decreasing gas prices in the short term
  - Despite increasing gas and CO\(_2\) prices after 2025, the baseload price continue to decrease as renewable generation grows

- \(2030\) - \(2040\)
  - Despite continually increasing commodities and demand, the baseload price remains stable in the 2030s, due to continued growth in renewables

- \(2040\) - \(2060\)
  - The baseload price falls in the 2040s, as the high penetration of renewables more than offsets the upward pressure from higher commodity prices and electricity demand

---

1) Prices are inclusive of the generation tax, which we assume to continue throughout the forecast horizon. 2) Calculation based on CCGT efficiency of 49.13% and carbon intensity of 0.18 ton CO\(_2\)/MWhTh. VOM is estimated to be 3 €/MWh.
Disclaimer and Copyright

General Disclaimer
This document is provided "as is" for your information only and no representation or warranty, express or implied, is given by Aurora Energy Research Limited and its subsidiaries Aurora Energy Research GmbH and Aurora Energy Research Pty Ltd (together, "Aurora"), their directors, employees agents or affiliates (together, Aurora’s "Associates") as to its accuracy, reliability or completeness. Aurora and its Associates assume no responsibility, and accept no liability for, any loss arising out of your use of this document. This document is not to be relied upon for any purpose or used in substitution for your own independent investigations and sound judgment. The information contained in this document reflects our beliefs, assumptions, intentions and expectations as of the date of this document and is subject to change. Aurora assumes no obligation, and does not intend, to update this information.

Forward-looking statements
This document contains forward-looking statements and information, which reflect Aurora’s current view with respect to future events and financial performance. When used in this document, the words "believes", "expects", "plans", "may", "will", "would", "could", "should", "anticipates", "estimates", "project", "intend" or "outlook" or other variations of these words or other similar expressions are intended to identify forward-looking statements and information. Actual results may differ materially from the expectations expressed or implied in the forward-looking statements as a result of known and unknown risks and uncertainties. Known risks and uncertainties include but are not limited to: risks associated with political events in Europe and elsewhere, contractual risks, creditworthiness of customers, performance of suppliers and management of plant and personnel; risk associated with financial factors such as volatility in exchange rates, increases in interest rates, restrictions on access to capital, and swings in global financial markets; risks associated with domestic and foreign government regulation, including export controls and economic sanctions; and other risks, including litigation. The foregoing list of important factors is not exhaustive.

Copyright
This document and its content (including, but not limited to, the text, images, graphics and illustrations) is the copyright material of Aurora, unless otherwise stated. This document is confidential and it may not be copied, reproduced, distributed or in any way used for commercial purposes without the prior written consent of Aurora.