



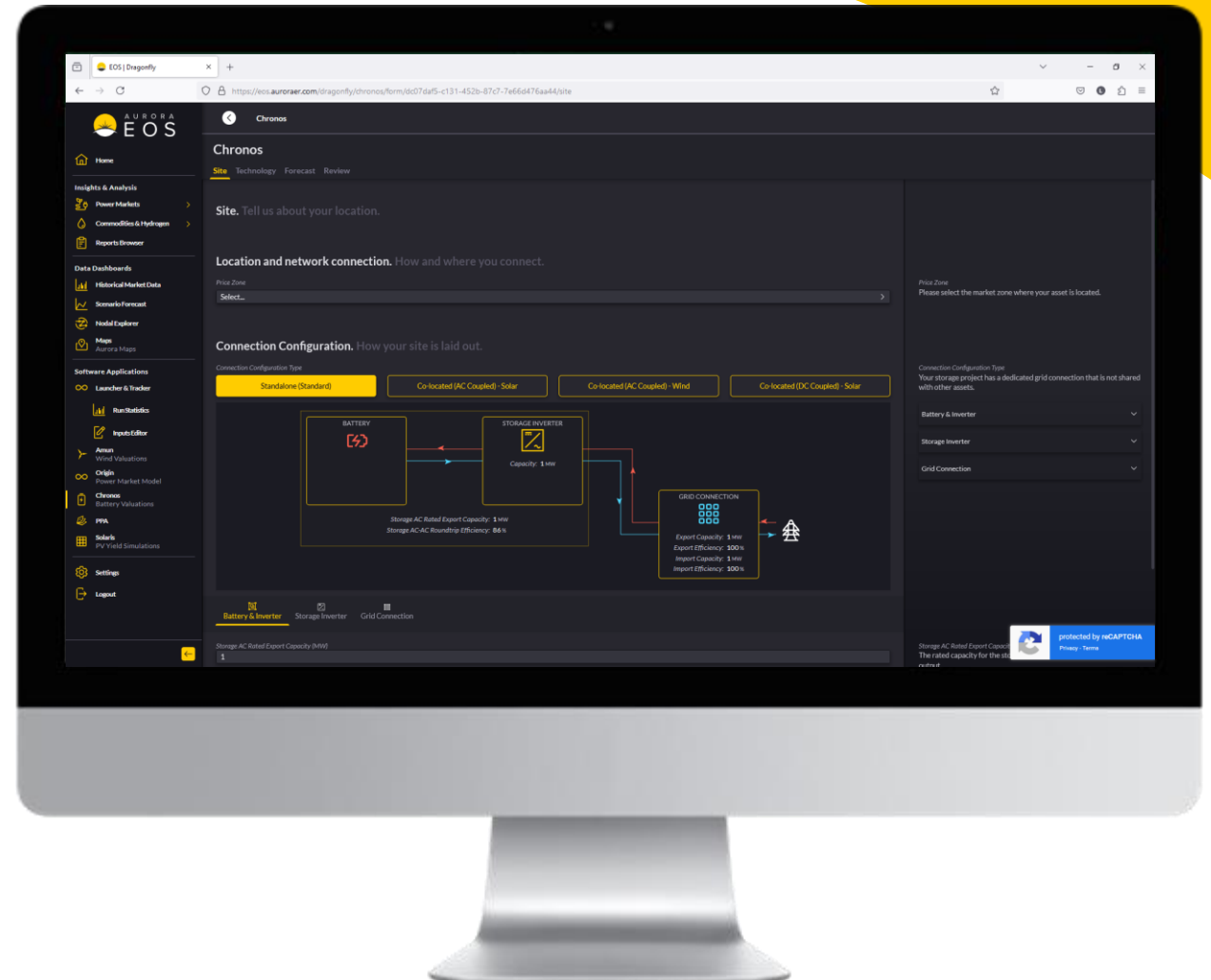
Webinar

Strategic Battery Investments in Iberia and Italy

Powered by



CHRONOS



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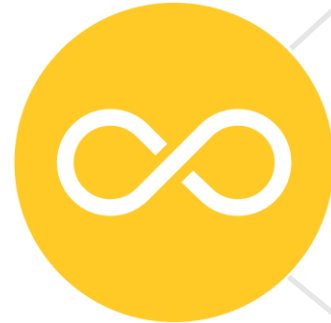
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- II. **Chronos methodology**
- III. **Chronos in action**
- IV. **Taking Chronos results to the bank**
- V. **Customer Success support**
- VI. **Q&A**

Seamlessly integrated suite of software products

ORIGIN
for markets

Our **market-level model** enables you to create your own market scenarios within hours, and quantify market risks and upsides from policy, commodity, demand and supply changes.



AMUN
for wind



CHRONOS
for batteries



SOLARIS
for solar



LUMUS
for PPA contracts

Our **contracts valuation engine** lets you price and analyse Power Purchase Agreements, fully consistent with Aurora's view of the market.

Our **asset-level tools** quantify the value of your assets or sites under different configurations and market scenarios.

With Origin: use your own scenarios in your valuations

With each other: value co-located assets and portfolios



CHRONOS

Battery valuations, perfected

Chronos allows you to evaluate any storage asset using Aurora's cutting-edge proprietary dispatch engine

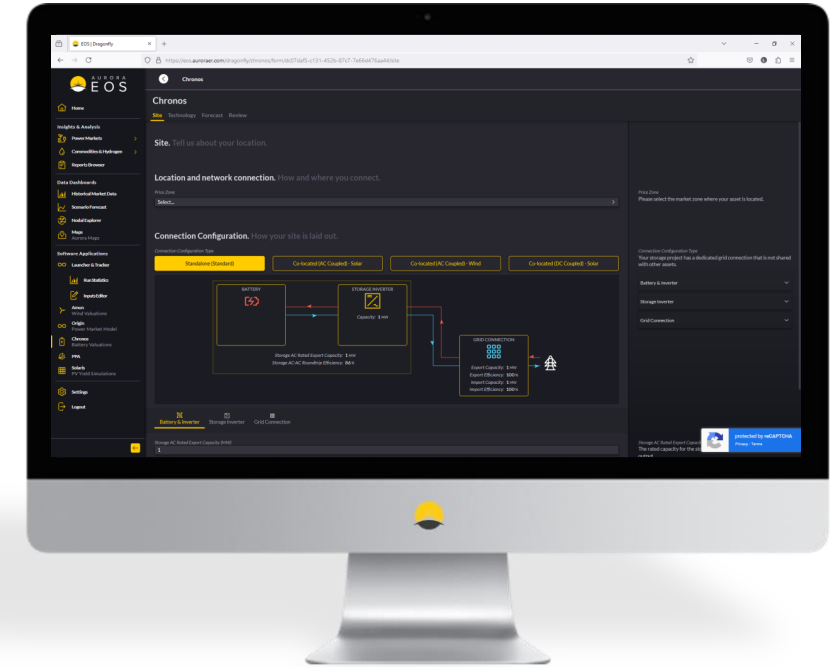
Thorough: Accounts for all site-specific value drivers

Reliable: Backed by Aurora's trusted forecasts and team of experts

Bankable: Methodology recognised by banks and investors, with reliance available

Comprehensive UX: Intuitive interface that empowers user driven analyses

Efficient: Evaluate as many opportunities or scenarios as you require, without any consultancy lead times, for just one yearly fee



Intuitive 4-step process:



What can Chronos be used for?



Transactions



Project Design
Optimisation



Portfolio
Valuation



Optimisation
Benchmarking

A global benchmark trusted by industry leaders



90+ subscribing companies in the first year

Underpins major debt financings

Used by leading developers for site selection and optimisation

Simple to use and beats advisory wait times

Underpinned by Aurora's bankable market forecasts used by and relied on by 350+ companies globally

Chronos in Iberia and Italy builds on our extensive experience supporting clients and lenders with battery evaluations



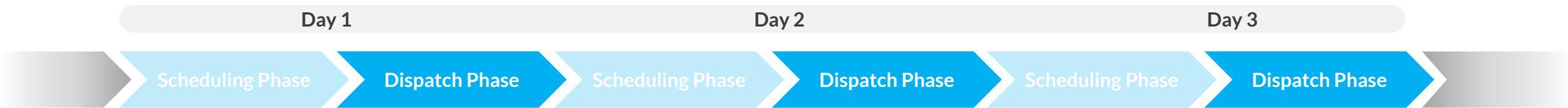
KEY FIGURES



PROJECT TYPE



Aurora's battery dispatch model **Chronos** for Italy optimises daily between the Day-Ahead and MSD¹ markets to profit from arbitrage



Chronos is solved in **blocks of 1 day** (24 hours), determining all actions for each block before moving onto the next block. Each block is solved in two stages:

SCHEDULING PHASE

Outputs:

- Day-Ahead wholesale market positions (at hourly granularity)

Method:

The Scheduling Phase is solved with an optimisation approach, with up to 32 hours foresight of remaining prices (for Day-Ahead only). Participation in this market also accounts for the opportunity cost of participating in the MSD. Opportunity cost is influenced by an imperfect foresight over a limited number of upcoming MSD prices.

DISPATCH PHASE

Outputs:

- Final positions in all markets
 - Fulfilment (or non-fulfilment) of Day-Ahead commitments
 - MSD charging/discharging
- End-of-day state of charge

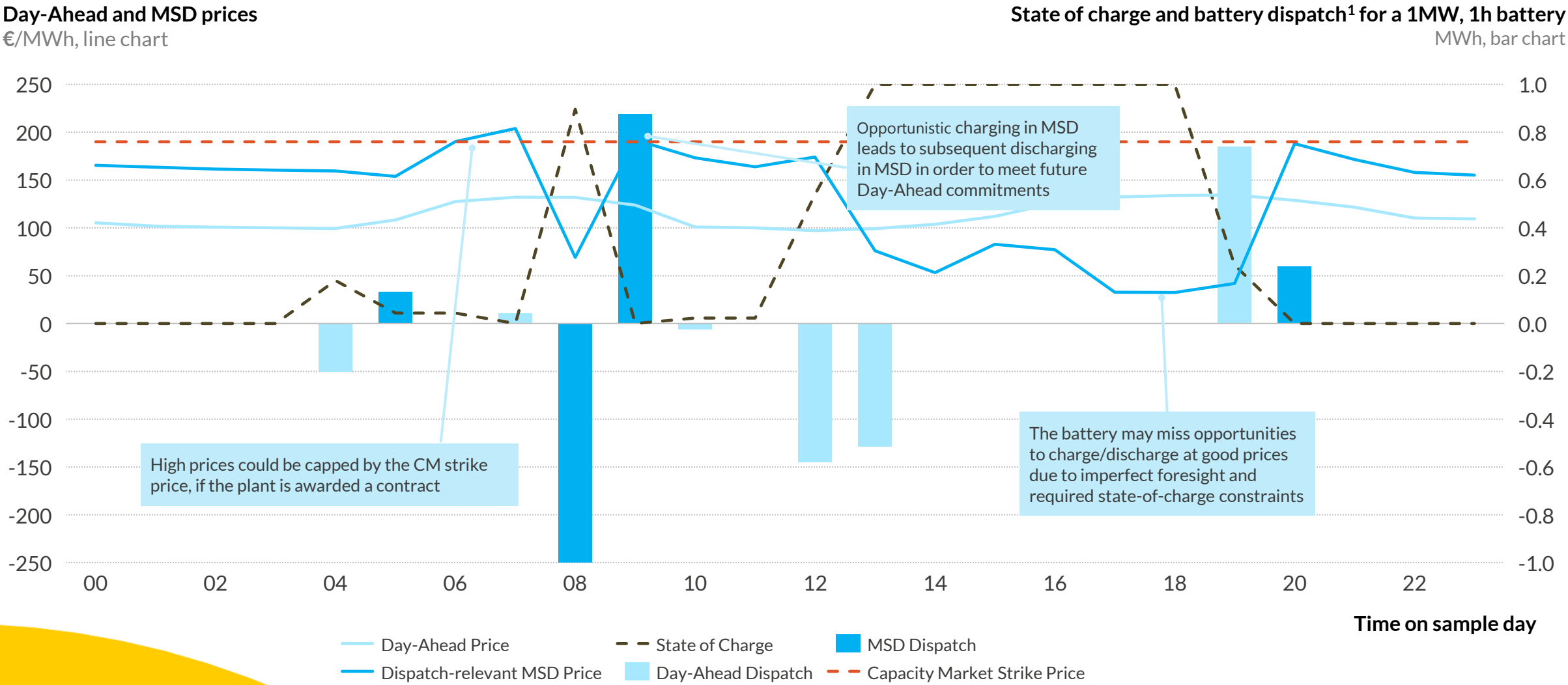
Method:

Day-Ahead commitments are fulfilled first (subject to state of charge conditions). MSD actions are determined using a heuristic price threshold approach based on upcoming Day-Ahead prices. No direct foresight over the upcoming MSD prices is assumed.

1) Mercato dei Servizi di Dispacciamento, Italy's ancillary services market.

Example of modelled battery - Italy

Asset is optimising to price movements, but could miss out on some prices due to imperfect foresight



1) Discharging/export actions are shown as positive, while charging/import actions as negative; 2) MSD price in the prevailing (i.e. highest-volume) direction of the regulation in the relevant hour.

Chronos for Iberia optimises daily revenues across the Wholesale, Secondary and Balancing Markets¹



Chronos is solved in **blocks of 1 day** (24 hours), determining all actions for each block before moving onto the next block.

Each block is solved in two stages:

SCHEDULING PHASE

Outputs:

- Day-Ahead market positions (at hourly granularity)
- Secondary Reserve Capacity Band commitment

Method:

The Scheduling Phase is solved with an optimisation approach, with up to 32 hours foresight of upcoming prices (for Day-Ahead and Secondary Reserve Capacity only). Participation in these markets also accounts for the opportunity cost of participating in real-time markets (Intraday and Balancing), however the assessment of the opportunity cost is based on imperfect foresight.

DISPATCH PHASE

Outputs:

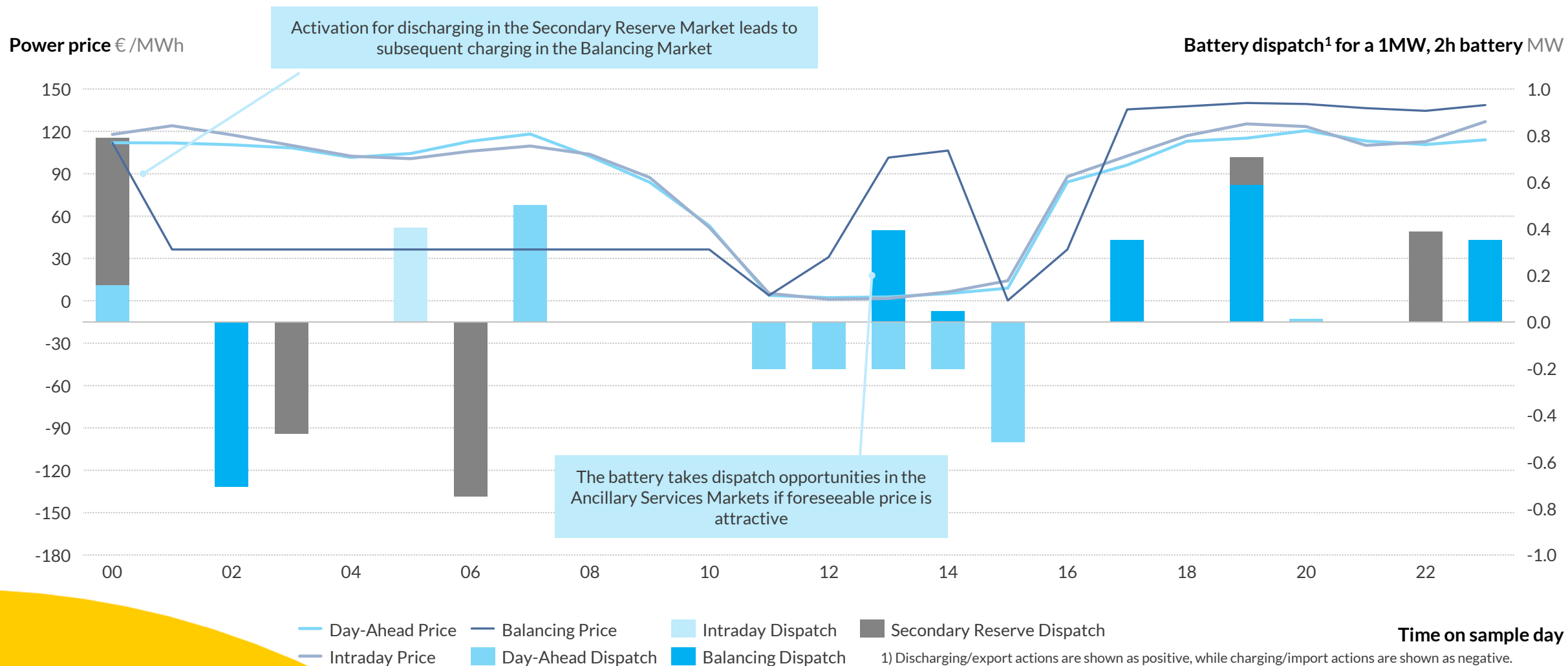
- Fulfilment (or non-fulfilment) of Day-Ahead and Secondary Reserve Capacity commitments (including Secondary Reserve energy activation)
- Intraday market charging/discharging, if applicable
- Balancing market charging/discharging, if applicable

Method:

Day-Ahead and Secondary Reserve Capacity commitments are fulfilled first (subject to state of charge conditions²). Intraday and Balancing actions are undertaken if the prices are deemed attractive based on upcoming Day-Ahead prices³. No foresight over upcoming Intraday and Balancing prices is assumed.

1) Balancing Market represents the combination of Tertiary Reserve and Replacement Reserve. 2) If the battery cannot deliver the scheduled Day-Ahead volume or Secondary Reserve volume upon activation, the non-delivered volume is subject to a penalty. 3) Historically, Balancing Market prices have closely followed the Day-Ahead Market trends.

Example of modelled battery: Asset is optimising to price movements, but could miss out on some prices due to imperfect foresight



Chronos captures our experience as the leading commercial advisor for battery investments and transactions in Europe

Deeply experienced in investment & business case analysis

1

- Aurora have advised >4GW of battery storage projects in Europe
- Our forecasts have enabled battery investments of >2.1bn €
- Over 250 developers, investors, utilities and banks subscribe to Aurora's regular revenue stream and battery business case forecasts in Europe

Extensively relied upon for debt financing

2

- Aurora forecasts have helped to raise >750mn € of debt financing for battery storage projects
- We provided reliance to 10+ banks to debt finance battery projects

Widely trusted for ongoing fund valuations

3

- Aurora provides forecasts used in the regular valuation of 3 listed battery funds with total Net Asset Value of > 2.1bn €
- Renewable & Energy Transition funds with >100bn € AUM use Aurora forecasts for their battery storage valuations & investments



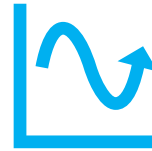
Take your **Chronos** valuations to the bank with our additional Advisory Services including complementary reports and bespoke analysis

Complementary report¹



- Overview of the available markets under Aurora's Central scenario.
- Description of **Chronos** methodology and a summary of results for the configurations analysed².
- Includes a breakdown of gross margins and volumes per market.

Bespoke scenarios



- Aurora can simulate configurations under additional scenarios.
- The deliverable includes an Excel databook with the same structure as the **Chronos** output.

Longer duration (up to 8h)



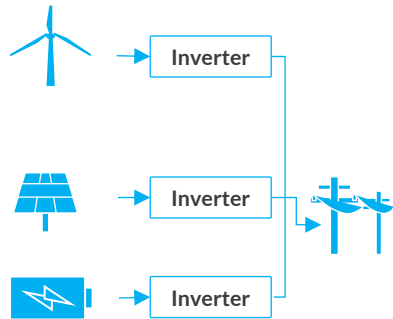
- Aurora can simulate configurations under Aurora's Central scenario for assets with up to 8-hours duration.
- The deliverable will include an Excel databook with the same structure as the **Chronos** output.

1) In ppt format, c.20 slides. 2) Up to 4 configurations included in the report.

Aurora supports investors and lenders by providing bespoke country analysis via our **Chronos** software



Triple Hybridisation



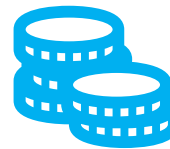
- Triple hybridisation configuration (solar PV + onshore wind + BESS)
- Databook will be provided

DA¹ Technical Restrictions upside



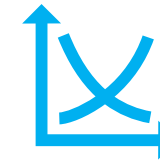
- Subject to publicly available data², upside for a standalone BESS in day-ahead Technical Restrictions until 2030

Pay-as-produced PPA or fixed tariff inclusion³



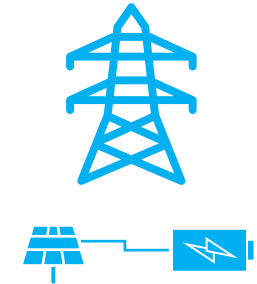
- For a physical pay-as-produced PPA or a regulated asset under a fixed tariff (CfD or FiT)

Deep-dive of Business Models under MACSE



- Combining **Chronos** results with MACSE participation

Co-location Analysis for Grid Curtailment



- RES/BESS co-location which considers province-specific forecasts of grid curtailment, and mitigation via BESS

1) Day-ahead.

Chronos is continually updated with the latest market insights, ensuring you stay ahead; our ongoing support will help you make the most of your **Chronos** experience

Research Market Experts

- Biannual **market reports**, covering modelling, policy and price updates
- Dedicated time with **regional experts** to gain insights into our market modelling



- **Rolling updates** to ensure **Chronos** reflects latest market trends, all part of your subscription
- **Hourly revenue optimisation** of country specific investment cases

Customer Success

- **You are not alone!** We help you make the most of **Chronos**, with continued support along your entire **Chronos** journey

Customer Success continued...

Chronos Customer Success: Getting started, made easy!

Comprehensive support from our dedicated team of Chronos battery valuation experts

Implementation

Chronos is designed to be user-friendly, requiring minimal training or setup

- Use out-of-the-box features
- Benefit from onboarding sessions tailored to your use case and focused on your target assets
- Integrate **Chronos** into your financial modelling

Training

Tailored training ensures proficiency after your **Chronos** service activation

- Create all your target valuations, upload your renewable profiles, and OEM degradation curves
- Delve into thematic deep dives and new feature training

Ongoing Support

Our **Chronos** experts are on-hand to help you check and understand your valuations

- Have **Chronos** results checked by our team
- Ensure you are using **Chronos** correctly
- Use your checked results as a part of additional bespoke Advisory work

Community Events

Participate in regular sessions where we learn from you, and you learn from each other

- Network with local, regional, and global peers
- Attend online and offline events
- Contribute to the **Chronos** development roadmap

Chronos is **shaped by our subscribers:** current and future

The highest priority enhancements as ranked by the Chronos community

1

Continued expansion of Chronos to more regions, with DEU, ERCOT, and CAISO coming in the first half of 2025.

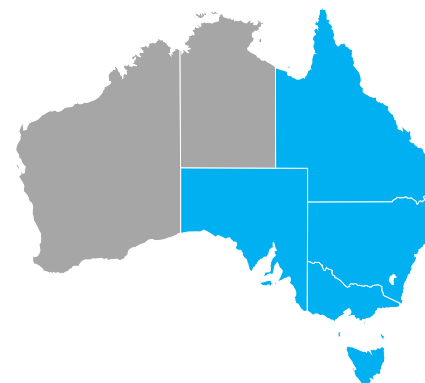
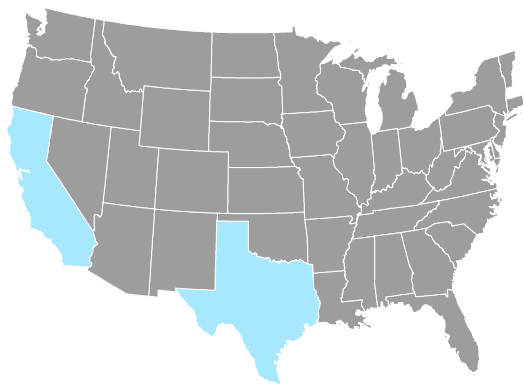
2



Create and launch many simulations easily & refresh your entire portfolio against a new market scenario in just a few clicks

3

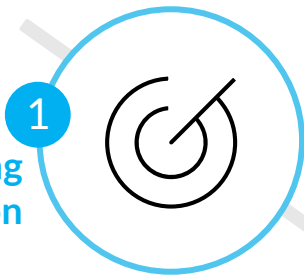
Support significant battery overbuild market scenarios and assess the impact of additional cannibalisation

Where can you find Chronos



-  CURRENTLY AVAILABLE
-  COMING SOON...

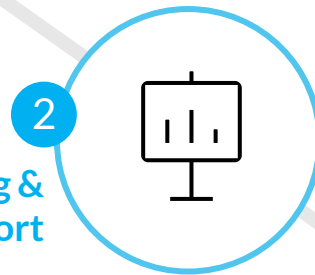
Chronos: your ideal tool for a wide range of use cases spanning the investment horizon



1
**Site scanning
& optimisation**

Easily run 100s of simulations to assess multiple sites spanning diverse geographies & business models, for standalone & co-located sites

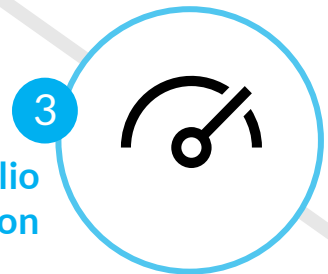
For each site, maximise returns by optimising key parameters such as battery sizing, cycle target, business model, & more



2
**Financing &
transaction support**

Generate rapid, site-specific, bankable results for use in transactions and financing processes

Valuation Review Services: our experts review and verify your results in order to generate bankable, reliance-ready reports



3
**Asset & portfolio
evaluation**

Regularly assess the impact of different market outlooks on the performance of your asset/portfolio, based on Aurora's latest bankable curves

Regularly refresh your valuations for financial covenant testing

Upcoming: Quantify the impact of your own bespoke market scenarios (e.g., battery overbuild) on your asset/portfolio



Customer Success

A dedicated team of experts to assist you every step of the way

REACH OUT TO US:

Beatriz Barros, Senior Commercial Associate

✉ beatriz.barros@auroraer.com



Reach out to our team!



Beatriz Barros

Senior Commercial Associate

Get in touch with me for more information about **Chronos** and battery investments:

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