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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

**FORM 6-K**

Report of Foreign Private Issuer  
Pursuant to Rule 13a-16 or 15d-16 under the Securities Exchange Act of 1934

For the month of November, 2023.

Commission File Number 001-40736

**Lilium N.V.**

(Translation of registrant's name into English)

**Claude Dornier Straße 1  
Bldg. 335, 82234  
Wessling, Germany**

**Telephone: +49 160 9704 6857**  
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

Form 20-F  Form 40-F

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## CONTENTS

### Explanatory Note

#### *Battery Webinar*

On November 2, 2023, Lilium N.V. (“Lilium”) announced that it would host a webinar regarding the battery technology to be used in the Lilium Jet (the “Webinar”), presented by Lilium’s Co-Founder and Chief Engineer for Innovation, Daniel Wiegand. The Webinar occurred on Friday, November 10, 2023.

The Webinar presentation is furnished as Exhibit 99.1 to this Report on Form 6-K. Lilium intends to post the transcript from the Webinar on its website.

In order to achieve higher energy and more range to better position the Lilium Jet for regional missions, Lilium intends to manufacture its battery cells using a pre-lithiation process, which adds additional lithium to the cell during production to increase cell capacity.

The European Union Aviation Safety Agency (“EASA”) released its performance-based available reserve concepts for eVTOL aircraft (“Part IAM reserves”), which in the context of the Lilium Jet prescribes that after touchdown at the end of a flight the aircraft must have an additional 10% of the total trip energy consumed available in reserve. This reserve equates to an estimated approximately additional 45 seconds of hover time for the Lilium Jet. Lilium’s operating range target for the Lilium Jet of 175 kilometers is based upon the Part IAM reserves to ensure compliance.

As previously disclosed, an independent laboratory tested the cycle life of the Lilium Jet battery cells. The common test in the battery industry applied to the cells involved a 100% full charge and discharge over one hour each. The results were that the Lilium Jet battery cells retained 88% of their original capacity after 809 full cycles. Lilium then conducted tests using a flight profile in which it continuously fast charged the battery cells and assumed an aircraft flight with maximum take-off mass in mid-range missions and no active cooling of the cells. The result was that the battery cells achieved 1,450 mid-range flights with fast charging and still had 88% of their capacity retained. Lilium believes the difference in the outcome between its tests and those conducted by the independent laboratory was a result of the Lilium tests assuming a flight profile where the aircraft lands with 30% energy remaining in the cell rather than discharging the cell down to 0%. Lilium also believes that this outcome suggests that fast charging should not materially accelerate cycle life degradation in the Lilium Jet battery cells.

#### *InoBat Manufacturing Relationship*

On November 10, 2023, Lilium announced that it is expanding its existing partnership with InoBat, which is expected to provide high-volume production of the Lilium Jet’s high-performance battery cells. InoBat will build Lilium Jet battery cells at its existing Volta I plant and its future Volta II plant, both in Voderady, Slovakia. Production at the Volta I plant is expected to start in early 2024. Developing this second potential source of battery cell manufacturing capacity is an important step to de-risk Lilium’s battery cell supply.

The press release regarding the InoBat manufacturing relationship is furnished as Exhibit 99.2 to this Report on Form 6-K.

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## **Incorporation by Reference**

The Explanatory Note above, but not the Exhibits attached hereto, are hereby incorporated by reference into Lilium's registration statements on Form F-3 filed with the U.S. Securities and Exchange Commission ("SEC") on September 18, 2023 (File No. 333-274550), June 9, 2023 (File No. 333-272571), February 3, 2023 (File No. 333-269568), November 25, 2022, as amended or supplemented (File No. 333-268562), and October 3, 2022, as amended or supplemented (File Nos. 333- 267718 and 333-267719), and Lilium's registration statement on Form S-8 filed with the SEC on November 18, 2021 (File No. 333-261175).

## **Forward-Looking Statements**

The information contained in this Report on Form 6-K and the Exhibits attached hereto contain certain forward-looking statements within the meaning of the federal securities laws, including, but not limited to, statements regarding: (i) Lilium N.V.'s and its subsidiaries (collectively, the "Lilium Group") proposed business and business model; (ii) the markets and industry in which the Lilium Group operates or intend to operate; (iii) the application and performance of battery technology in aviation and eVTOL aircraft, (iv) estimates regarding power density, life cycle, weight and other expected specifications of battery technology, (v) the expected performance and specifications of the Lilium Jet, including its projected range, (vi) expectations regarding the manufacture of Lilium's battery cells, (vii) the scope and benefit of Lilium Group's procurement and supply chain strategy, (viii) the potential impact of regulations on the Lilium Jet (ix) Lilium's partnership with InoBat, including InoBat's planned manufacture of batteries for the Lilium Jet at its Volta I plant and planned Volta II plant and its ability to scale to high-volume production of batteries and (x) Lilium's affirmation of previously provided guidance for the second half of 2023, including estimated cash spend. These forward-looking statements generally are identified by the words "anticipate," "believe," "could," "expect," "estimate," "future," "guide," "intend," "may," "on track," "plan," "project," "target," "trend," "should," "strategy," "will," "would" and similar expressions. Forward-looking statements are predictions, projections and other statements about future events and are subject to risks, uncertainties and assumptions, and are subject to change at any time. Actual events or results may differ materially from those contained in the forward-looking statements. Factors that could cause actual future events to differ materially from the forward-looking statements in this Report on Form 6-K and the Exhibits attached hereto include the risks identified under the heading "Forward Looking Statements and Risk Factors" in Exhibit 99.1 and under the heading "Risk Factors" in our Annual Report on Form 20-F for the year ended December 31, 2022 filed with the SEC and similarly titled sections in our other SEC filings. We caution investors not to rely on the forward-looking statements contained in this Report on Form 6-K or the Exhibit attached hereto. You are encouraged to read our filings with the SEC available at [www.sec.gov](http://www.sec.gov) for a discussion of these and other risks or uncertainties. Forward-looking statements speak only as of the date they are made. Lilium assumes no obligation to, and does not intend to, update or revise these forward-looking statements, whether as a result of new information, future events or otherwise. Lilium's business is subject to substantial risks and uncertainties including those described in Lilium's filings with the SEC referenced above.

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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Dated: November 13, 2023

Lilium N.V.

By: /s/ Klaus Roewe

Name: Klaus Roewe

Title: Chief Executive Officer and Executive Director

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EXHIBIT INDEX

| Exhibit Number       | Description of Document   |
|----------------------|---|
| <a href="#">99.1</a> | <a href="#">Battery Webinar dated November 10, 2023</a>   |
| <a href="#">99.2</a> | <a href="#">Press release dated November 10, 2023 — Lillium Announces Partnership for High-Volume Production of Lillium Jet Battery Cells</a> |

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# Battery Webinar

The battery power behind the world's first electric VTOL Jet  
November 10<sup>th</sup>, 2023

# Legal Disclaimer p. 1

## Forward-Looking Statements and Risk Factors

This presentation contains certain forward-looking statements within the meaning of the federal securities laws, including, but not limited to, statements regarding (i) the Lillium Group's proposed business and business model, the markets and industry in which the Lillium Group operates or intends to operate, (ii) the anticipated timing of the commercialization and launch of the Lillium Group's business and the expected results of the Lillium Group's business and business model, including when launched in phases, (iii) the application and performance of battery technology in aviation and eVTOL aircraft, (iv) estimates regarding power density, life cycle, weight and other expected specifications of battery technology, (v) the performance of the Lillium Jet, including its projected range, (vi) expectations regarding the manufacture of Lillium's battery cells, (vii) the scope and benefit of Lillium Group's procurement and supply chain strategy, (viii) the potential impact of regulations on the Lillium Jet, and (viii) Lillium's affirmation of previously provided guidance for the second half of 2023, including estimated cash spend. These forward-looking statements generally are identified by the words "believe," "project," "expect," "anticipate," "estimate," "intend," "strategy," "target," "future," "opportunity," "plan," "may," "should," "will," "would," "will be," "will continue," "will likely result," and similar expressions. Such statements are based on management's belief or interpretation of information currently available. Forward-looking statements are predictions, projections and other statements about future events that are based on management's current expectations with respect to future events and are based on assumptions subject to risks and uncertainties, and as a result are subject to change at any time. The Lillium Group operates and will continue to operate in a rapidly changing emerging industry. New risks emerge every day. Given these risks and uncertainties, you should not rely on or place undue reliance on these forward-looking statements, including any statements regarding when or whether any strategic collaboration between Lillium and the respective collaborator will be effected, the number, price or timing of any Lillium jets to be acquired (or if any such Lillium jets will be acquired at all), the price to be paid therefor and the timing of launch or manner in which any proposed eVTOL network or anticipated commercial activities will operate, or statements regarding the Lillium Group's business and product development strategies or certification program. Actual events or results may differ materially from those contained in the projections or forward-looking statements. Many factors could cause actual future events to differ materially from the forward looking statements in this presentation, including, but not limited to, the following risks: (i) Lillium's future funding requirements and any inability to raise necessary capital on favorable terms (if at all); (ii) the eVTOL market may not continue to develop, or eVTOL aircraft may not be adopted by the transportation market; (iii) the Lillium Jet may not be certified by transportation and aviation authorities, including the European Union Aviation Safety Agency ("EASA") or the U.S. Federal Aviation Administration ("FAA"); (iv) the Lillium Jet may not deliver the expected reduction in operating costs or time savings that Lillium anticipates; (v) adverse developments regarding the perceived safety and positive perception of the Lillium Jets, the convenience of expected future Vertiports and Lillium's ability to effectively market and sell regional air mobility ("RAM") services and aircraft; (vi) challenges in developing, certifying, manufacturing and launching Lillium's services in a new industry (urban and regional air transportation services); (vii) a delay in or failure to launch commercial services as anticipated; (viii) the RAM market for eVTOL passenger and goods transport services does not exist, whether and how it develops is based on assumptions, and the RAM market may not achieve the growth potential Lillium's management expects or may grow more slowly than expected; (ix) if Lillium is unable to adequately control the costs associated with pre-launch operations and/or its costs when operations are commenced (if ever); (x) difficulties in managing growth and commercializing operations; (xi) failure to commercialize Lillium's strategic plans; (xii) any delay in completing testing and certification, and any design changes that may be required to be implemented in order to receive type certification for the Lillium Jet; (xiii) any delays in the development, certification, manufacture and commercialization of the Lillium Jets and related technology, such as battery technology or electric motors; (xiv) any failure of the Lillium Jets to perform as expected or an inability to market and sell our Lillium Jets; (xv) any failure of suppliers to achieve serial production of the proprietary and/or novel software, battery technology and other technology systems still in development; (xvi) reliance on third-party suppliers for the provision and development of key emerging technologies, components and materials used in the Lillium Jet, such as the lithium-ion batteries that will power the jets, a significant number of which may be single or limited source suppliers, and the related risk that any of these prospective suppliers or strategic partners may choose not to do business with us at all, or may insist on terms that are commercially disadvantageous, and as a result we may have significant difficulty procuring and producing our jets; (xvii) if any of Lillium's suppliers become financially distressed or go bankrupt, Lillium may be required to provide substantial financial support or take other measures to ensure supplies of components or materials, which could increase costs, adversely affect liquidity and/or cause production disruptions; (xviii) third-party air carriers are expected to operate Lillium Network services in the U.S., Europe, the Kingdom of Saudi Arabia, the United Kingdom and Brazil, among other countries, using the Lillium Jets, and these third parties, as well as Lillium, are subject to substantial regulation and complex laws, and unfavorable changes to, or the third-party air carriers' or Lillium's failure to comply with, these regulations and/or laws could substantially harm Lillium's business and operating results; (xix) any inability to operate the Lillium Network services after commercial launch at the anticipated flight rate, on the anticipated routes or with the anticipated Vertiports could adversely impact Lillium's business, financial condition and results of operations; (xx) potential customers may not generally accept the RAM industry or Lillium's passenger or goods transport services; (xxi) any adverse publicity stemming from any incident involving Lillium or its competitors, or an incident involving any air travel service or unmanned flight based on autonomous technology; (xxii) if competitors obtain certification and commercialize their eVTOL vehicles; (xxiii) business disruptions and other risks arising from COVID-19 and geopolitical events, including the war in Ukraine and inflationary pressures, may impact Lillium's ability to successfully contract with its supply chain and have adverse impacts on anticipated costs and commercialization timeline; and/or (xiv) Lillium's inability to deliver Lillium Jets with the specifications and on the timelines anticipated in any non-binding memorandums of understanding ("MOUs") or or binding contractual agreements with customers or suppliers we have entered into or may enter into in the future. The foregoing list of factors is not exhaustive. Forward-looking statements speak only as of the date they are made. You are cautioned not to put undue reliance on forward-looking statements, and the Lillium Group assumes no obligation to, and does not intend to, update or revise these forward-looking statements, whether as a result of new information, future events, or otherwise. The Lillium Group is not giving you any assurance that it will achieve its expectations. A further list and description of risks, uncertainties and other matters can be found in sections titled "Risk Factors," similarly titled sections and elsewhere in our filings with the U.S. Securities and Exchange Commission ("SEC"), all of which are available at [www.sec.gov](http://www.sec.gov). All forward-looking statements attributable to the Lillium Group or any person acting on its behalf are expressly qualified in their entirety by this cautionary statement.

# Legal Disclaimer p. 2

## **No Representations or Warranties**

No representations or warranties, express or implied, are given in, or in respect of, this presentation or the accompanying oral presentation (collectively, this "presentation"). This presentation does not purport to be comprehensive or all-inclusive and is for information purposes only. It does not purport to contain all of the information that may be required to perform a complete analysis of the business or prospects of Liliium N.V. ("Liliium" or the "Company"). To the fullest extent permitted by law, in no circumstances will Liliium or its subsidiaries (collectively, the "Liliium Group") or any of their respective shareholders, affiliates, representatives, partners, directors, officers, employees, advisers or agents be responsible or liable for any direct, indirect or consequential loss or loss of profit arising from the use of this presentation, its contents, its omissions, reliance on the information contained within it, or on opinions communicated in relation thereto or otherwise arising in connection therewith. Industry and market data used in this presentation have been obtained from third-party industry publications and sources, as well as from research reports prepared for other purposes that the Liliium Group believes are reasonable. The Liliium Group has not independently verified the data obtained from these sources and cannot assure you of the data's accuracy or completeness, and this data is subject to change. Except as otherwise required by applicable law, the Liliium Group disclaims any duty to update the information contained in this presentation.

## **No Offer or Solicitation**

This presentation is not intended to and does not constitute an offer to sell or the solicitation of an offer to subscribe for or buy or an invitation to purchase or subscribe for any securities in any jurisdiction.

## **Estimates and Data Regarding Battery Cell Technology**

This presentation contains certain estimates and illustrative data regarding battery cell technology expected to be used in the Liliium Jet that is based on or derived from sources that Liliium reasonably believes to be representative of our expectations for such technology as of the date of this presentation. However, the subject matter of this presentation is complex and the performance of battery cell technology can be impacted, in some cases materially, by numerous variables and applicable aircraft operating conditions (e.g., altitude, temperature, aircraft loading, maneuvers, etc.). Additionally, the estimates and illustrative data used in this presentation are based in part on testing and data collected from different generations of battery cells manufactured by various suppliers. While these different generations of battery cells use the same chemistry, and we believe that we have applied the data accumulated in a reasonable manner, there may be minor deviations in certain aspects of the manufacture and/or composition of different generations of battery cells that impact performance and the applicability of measurements as between different generations. Therefore, actual battery cell technology and performance necessary for the Liliium Jet to achieve our expectations may differ materially from the estimates and illustrative data set forth in this presentation.

## **Description of Key Partnerships**

This presentation contains descriptions of some of Liliium's key business partnerships with whom Liliium has entered into feasibility studies, indications of interest, term sheets, memoranda of understanding or other preliminary arrangements. These descriptions are based on the Liliium management team's discussions and the latest available information and estimates as of the date of this presentation. In each case, these descriptions are subject to negotiation and execution of definitive agreements that may not have been completed as of the date of this presentation and, as a result, the nature, scope and content of these key business partnerships remain subject to change.

## **Financial Information**

Some of the financial information and data contained in this presentation is unaudited and does not conform to Regulation S-X. Accordingly, such information and data may not be included in, may be adjusted in or may be presented differently in the reports and other documents the Liliium Group may from time-to-time file with the SEC. You should review Liliium's audited financial statements in its filings with the SEC for a presentation of Liliium's historical IFRS financial information.

## **Trademarks**

This presentation contains the trademarks, service marks, trade names and copyrights of the Liliium Group and other companies, which are the property of their respective owners.

## **Graphic Representations**

Aircraft depicted in this presentation have been rendered utilizing computer graphics.

The information contained herein is made as of 10 November 2023, and does not reflect any subsequent events.



## Agenda

## Time

1. Opening
2. Why Battery Powered Flight?
3. What is the power consumption of the Lilium Jet? How did you validate it?
4. You need miracle batteries to supply the power of the Lilium Jet. When will they exist?
5. Would losing a battery pack make the resulting power draw unfeasible?
6. How does the reserve concept work and affect your operating range?
7. Did you test power profiles and missions on a real cell?
8. Did you test the cycle life of your High Silicon Anode cells?
9. Regarding safety, won't your battery get too heavy once requirements are included?
10. Do you have suppliers for those cells? Will it not take years to set up production?
11. Do you have alternatives/backups from a chemistry and production standpoint?
12. What's your cell technology roadmap to increase aircraft range in the future?
  
13. Q&A

45'

15'








Daniel Wiegand

Lilium Founder

Chief Engineer for Innovation

# Batteries offer highest overall efficiency – any flight that can be done using batteries will be done with batteries

|   | Batteries   | E-Hydrogen  | E-Fuels (SAF)   | Kerosene (today)  |
|---|---|---|---|---|
|   |  |  |  |  |
| Primary Energy Efficiency <sup>1</sup>  | <b>73%</b>  | 22%   | 13%   | 50%   |
| Electricity Price <sup>2</sup>  | ~ \$0.36 / kWh  |   |   |   |
| Cost/ kWh shaft power   | ~ \$0.5 / kWh <sup>3</sup>  | ~ \$1.7 / kWh <sup>3</sup>  | ~ \$2.8 / kWh   | ~ \$0.5 / kWh <sup>4</sup>  |
| Flight Range <sup>5</sup>   | <b>1,100 (2040) –<br/>2,000 km (2050)</b>   | Up to ~3,400 km   | Up to ~16,000 km  | Up to ~16,000 km  |
|   |   | Covers ~80% of all scheduled commercial flights                                   |   |   |
|  <small>Sources: 1. WTT (World Bank, LBST, IEA), TTW, T&amp;E calculations, Swiss Federal Office for Civil Aviation; 2. Statista; 3. Does not consider material cost for depletion of battery cells or fuel cells; 4. Transportation Research Procedia, Volume 59 (2021) 253-259, Jet A1 Fuel; 5. International Council on Clean Transportation and Lilium internal assessment</small> |   |   |   |   |

Battery is the major driver of the performance of an eVTOL

**Power**  
[kW]



**Energy**  
[kWh]

COSTS

SAFETY

CYCLE LIFE

CARBON  
FOOTPRINT

MATERIALS  
AVAILABILITY

RECYCLABILITY

Our key differentiators

**Largest  
Cabin**

**Low  
Operating Cost**

**Regional  
Flights**

# Passengers prefer ducted fans

## Jet (Ducted Fans)

Conventional aircraft



95% of all global airplanes use ducted fans, which are preferred by customers<sup>1</sup> for their...

Electric aircraft ⚡



Speed

Lower Noise

Low Vibrations

Higher Safety: Failure Containment

Higher Comfort

Aesthetics

Simplicity: One moving part

Disadvantage: More Power draw at take-off and landing

## Open Rotor



Higher Vibrations

Higher Noise

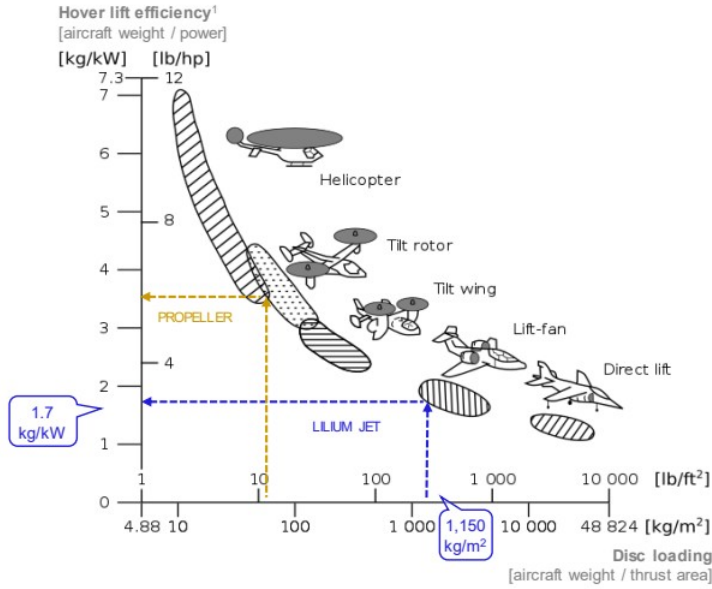
Lower Safety: No blade loss containment

Complexity: Variable blade pitch mechanism



Source: Architectural performance assessment of an eVTOL aircraft, 1. GAMA, JADC, Company information (Airbus, Boeing, Bombardier, Embraer), 2009 – 2019; Liliium Management estimates & company information; Note: Renderings utilizing computer graphics

# Simple power requirements can be obtained from general aerospace principles



**LILIJUM** Sources: 1. Hover vertical lift efficiency graph illustration from [NASA SP-2000-4517](#). 2. For illustration only. 3. Estimate based on Type Certificate jet configuration with a weight of 3,175kg. 4. Propeller-based eVTOL estimate based on peer websites, press clippings and the [NASA SP-2000-4517](#).

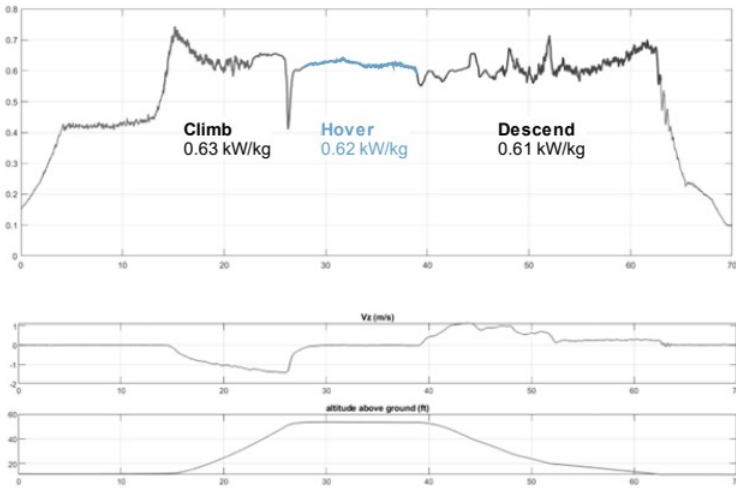
## Electric Hover Power simplified calculation<sup>2</sup>

|   | UNIT              | LILIJUM JET  | PROPELLER eVTOL |
|---|-------------------|--------------|-----------------|
| (A) ↓ Disc Loading                      | kg/m <sup>2</sup> | 1,150        | 60              |
| (B) ↓ Lift Efficiency                   | kg/kW             | 1.7          | 3.0             |
| (B = 1 / A) Shaft Specific Power        | kW/kg             | 0.59         | 0.28            |
| (C) Electric Power Train Efficiency %   |                   | 87%          | 87%             |
| (D = B / C) Specific Electric Power     | kW/kg             | 0.68         | 0.33            |
| (E) Aircraft weight                     | kg                | 3,175        | 3,175           |
| (F = D x E) <b>Electric Hover Power</b> | <b>kW</b>         | <b>2,147</b> | <b>1,014</b>    |

~2x

# Comparing simple power estimates to in-flight measurements

Demonstrator total measured Specific Power [kW/kg] – Sea Level, ISA+0



Sources: 1. For illustration only, e.g. full calculation would consider global efficiencies; 2. Measurements from Liliam's demonstrator "Phoenix 2"; 3. Estimate (e) based on Type Certificate jet configuration; 4. Extrapolated number based on Type Certificate jet's weight and real flight-testing data

Hover Power simple estimate<sup>1</sup> vs. real measurements<sup>2</sup>

|                                  | UNIT              | LILIAM JET <sup>3</sup> | DEMONSTRATOR RESULT <sup>4</sup> |
|----------------------------------|-------------------|-------------------------|----------------------------------|
| (D) ↓ Disc Loading               | kg/m <sup>2</sup> | 1,150                   | 1,150                            |
| (E) ↓ Specific Electric Power    | kW/kg             | 0.68                    | 0.62                             |
| (E) Gross weight                 | kg                | 3,175                   | *                                |
| (F = D x E) Electric Hover Power | kW                | 2,147                   | = 1,969                          |

**CONCLUSION**

Measured demonstrator power draw is slightly lower than simplified estimates.



# We're using industry best practice tools to obtain precise power estimates – evidence-based engineering



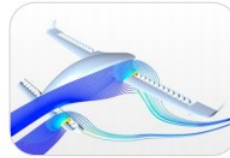
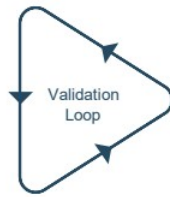
FLIGHT TESTING

**4** YEARS  
of flight testing done



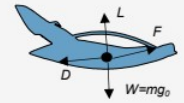
WIND-TUNNEL

**5** MONTHS  
of wind-tunnel testing conducted



FLIGHT TESTING

**10** MILLION HOURS  
of CFD computing



## Validated A/C performance model

- Full missions' simulation capabilities
- Used for customer performance guarantees
- Used for certification



MEASUREMENTS

**All** INDIVIDUAL COMPONENTS

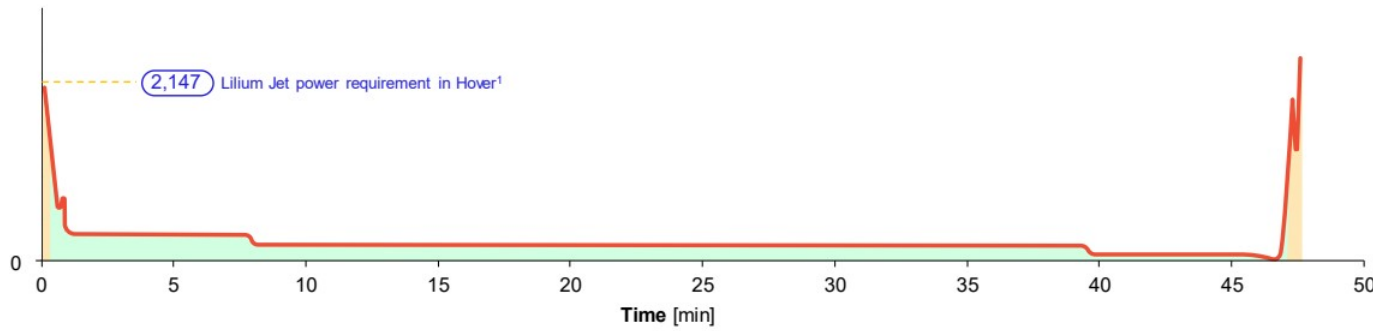
Compressor maps, e-motor efficiency maps, battery cell characterization



## We believe Lilium's Jet design is the best suited eVTOL configuration for regional missions

### Power profile on a 175 km regional mission

Power [kW]



**Hover** (less than 20kts speed) makes 9% of mission energy. A propeller would only reduce this to ~4%. However,...

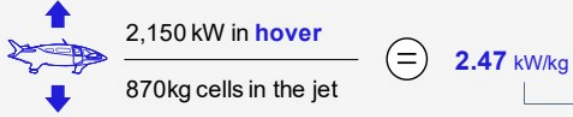
**...in Cruise**, our engine cross section is better sized and will be significantly more efficient than propeller based eVTOLs.



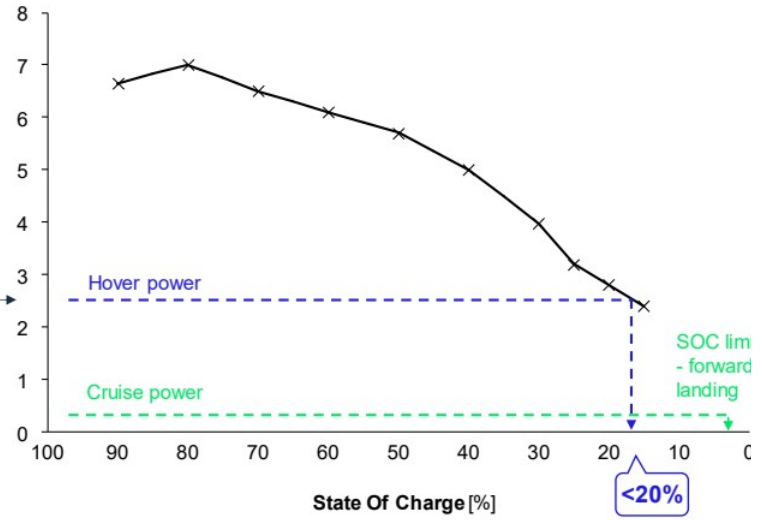
Overall, Lilium's Jet **consumes less Energy** for longer missions

# Translating aircraft power draws to cell level power requirements

## Our requirements at cell level



**Specific Cell Power [kW/kg]**  
(Measurement! @30°C, 30 sec pulse)



# We have a flying proof that our jet design works with standard Li-ion chemistries



## Phoenix 1

First flight: 2019

Disloading: 1,150 kg/m<sup>2</sup>



## Cell<sup>1</sup>: LG HG2

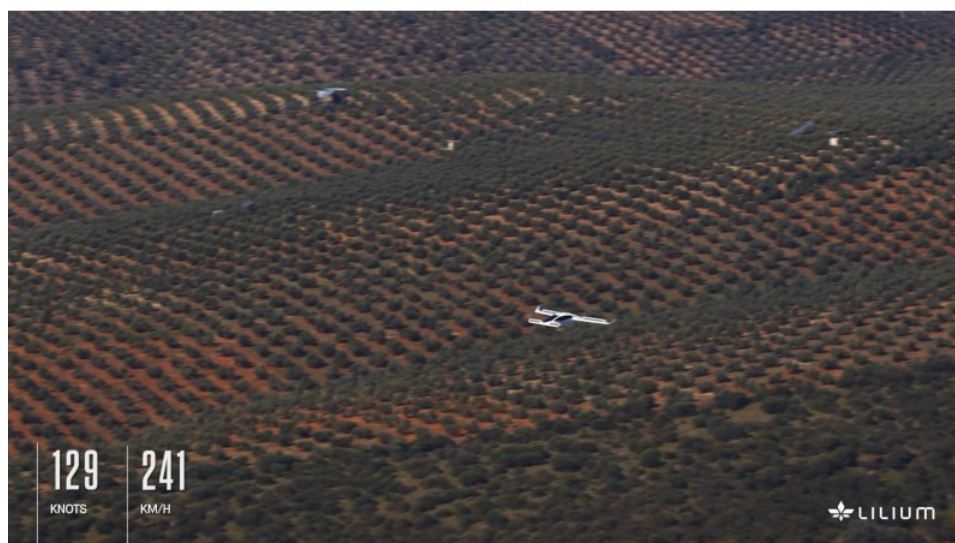


Cell type: Cylindrical – 18650

Cell design Year: 2013

Main application: e-Cigarettes

# We switched to pouch cells as they have less overhead mass, higher energy density and allow for better packaging efficiency



## Phoenix2

First flight: 2021

Disloading: 1,150 kg/m<sup>2</sup>



Cell<sup>1</sup>: KOKAM Li-ion



Cell type: Pouch

Cell design Year: 2015

Main application: Forklifter

4 YOU NEED MIRACLE BATTERIES  
to supply the high power of your aircraft in hover flight. When will they exist?

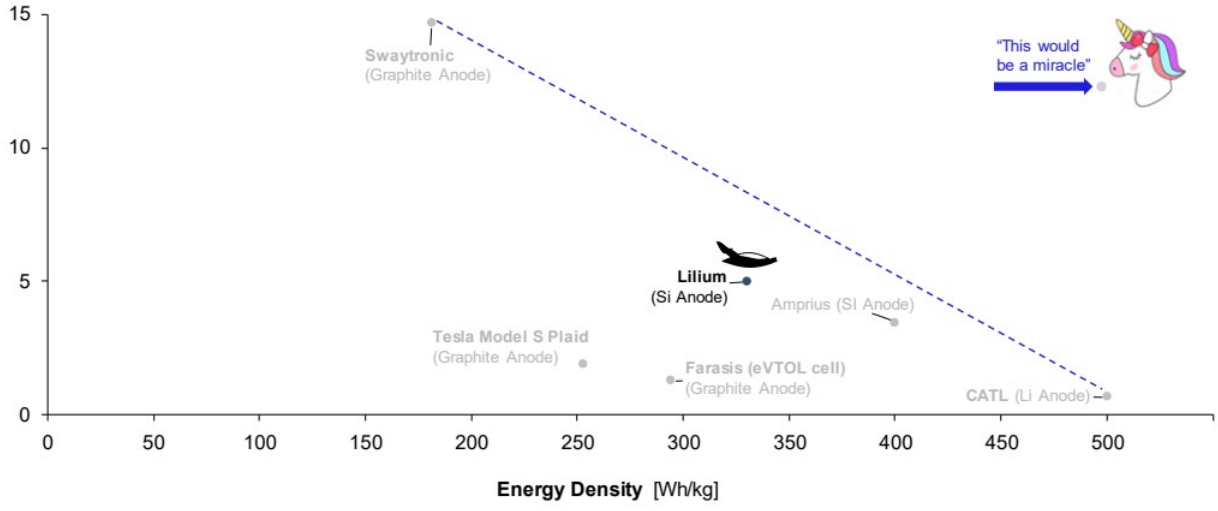
# Conforming A/C battery cell specifications

| ELEMENT                            | DESCRIPTION   |
|------------------------------------|---|
| <b>Design</b>                      | <b>IONBLOX</b> (California, USA)<br>Investors include Temasek,<br>Applied Materials and Lillium |
| Design Year                        | 2021  |
| <b>1<sup>st</sup> Manufacturer</b> | <b>CUSTOMCELLS</b> (Tübingen, Germany)  |
| Form factor                        | Pouch-cell  |
| <b>Anode chemistry</b>             | <b>Silicon dominant</b>   |
| Cathode chemistry                  | NMC811  |
| <b>Specific power</b>              | <b>5 kW/kg @ 50% SOC</b>  |
| <b>Specific Energy</b>             | <b>330 Wh/kg</b>  |
| Capacity                           | 38 Ah   |
| <b>Cycle life</b>                  | <b>&gt;800 1C/1C @25°C</b>  |



# Our cell performance is in line with current high-performance chemistry specs

Cell Specific Power at 50% State of Charge [kW/kg]



# By the time Lilium's Jet will enter the market, Silicon Anode Technology will be state of the art in premium automotive

## IEEE Spectrum

"**The Age of Silicon Is Here...for Batteries.** The mainstay material of electronics is now yielding **better energy storage.**"

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"Group14 Technologies, in Woodinville, Wash., should have its **silicon battery** setup in a **Porsche EV by next year.**"

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"[...] Sila Nanotechnologies' **silicon anode**, [...] will be in the **Mercedes G-Class SUV by 2026.**"

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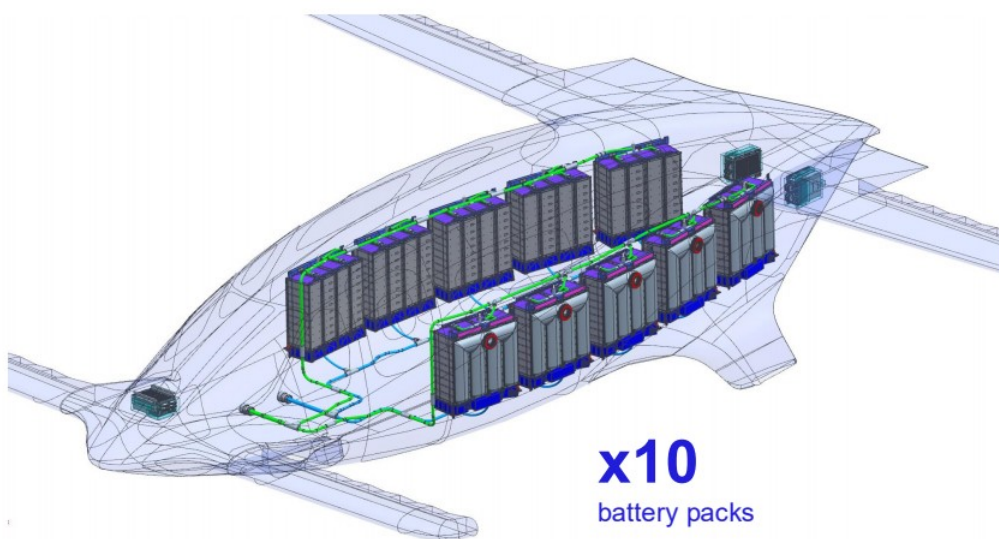


"[...] **General Motors** and OneD Battery Sciences in Palo Alto, Calif., are putting OneD's **silicon nanotechnology** into **GM's Ultium battery cells.**"



⑤ ISNT THE POWER DRAW OF YOUR AIRCRAFT GROWING TREMENDOUSLY IN FAILURE CASES such as losing a battery pack making the resulting power draw unfeasible?

## Our aircraft has 10 independent battery packs providing sufficient power in case of failure



**In case of failure of 1 pack, power increase by +11% across the rest of the 9 independent packs**

9 WHAT ABOUT SAFETY?  
Your battery might get too heavy once all safety requirements are incorporated

## All battery safety requirements included

- Crash protection
- Cell fire containment
- Flight loads
- Redundant power distribution
- Dissimilar and redundant battery management
- Traceability and Process Control

➤ **All battery safety requirements included for both European and U.S. certification**



# Applicable reserve concepts to our A/C



RELEASED



Federal Aviation Administration

**DRAFT**  
Public comment closed on 13.08

|                   |   |   |
|-------------------|---|---|
| Regulation        | <ul style="list-style-type: none"> <li>– <b>Part IAM</b> (Innovative Air Mobility Operations)</li> </ul>  | <ul style="list-style-type: none"> <li>– <b>SFARs</b> (Special Federal Aviation Regulations)</li> </ul>   |
| Hover time        | <ul style="list-style-type: none"> <li>– <b>NO specification</b></li> <li>– Part IAM is a <b>performance-based framework</b></li> </ul>   | <ul style="list-style-type: none"> <li>– <b>NO specification</b></li> <li>– Not <b>performance-based</b></li> </ul>   |
| Rules extract     | <ul style="list-style-type: none"> <li>– Contingency</li> <li>– Final Reserve</li> <li>– Alternates with Critical Failures</li> <li>– Evidence required that the pilot and the A/C can consistently execute the landing procedures</li> </ul> | <ul style="list-style-type: none"> <li>– The FAA have a <b>30-minute energy reserve requirement for VFR day and 45-minute for VFR night.</b></li> </ul>                                     |
| Analogies         | <ul style="list-style-type: none"> <li>– <b>Stricter than any other operating framework for helicopters</b> (vertiport landing in all cases)</li> </ul>   | <ul style="list-style-type: none"> <li>– <b>U.S. and Global industry are pushing to converge toward performance-based framework for energy reserves and the SFAR in general.</b></li> </ul> |
| How do we comply? | <ul style="list-style-type: none"> <li>– <b>Lilium's operating range target of 175km</b> built upon the EASAPart IAM reserves</li> </ul>  | <ul style="list-style-type: none"> <li>– <b>Lilium's commentaries submitted on August 12, 2023, pending FAA next step on SFAR</b></li> </ul>  |



# The aerospace industry is broadly requesting performance-based reserve requirements to the FAA

## US applicants asking for a performance-based approach:



General Aviation Manufacturers Association "GAMA advocates for the adoption of appropriate operating rules based on each aircraft's **performance characteristics**, highlighting the need to modernize legacy fuel-based energy reserves and reconsider the requirement for dual control variants. "



"...it is suggested to introduce the possibility to have more practical **performance-based** reserve requirements also considering the type of energy used for propulsion that would guarantee similar safety margins considering the particular concept of intended operations."



"Archer recommends that the FAA consider **performance-based** requirements for energy reserves, as well as other range and endurance related criteria that align with the capabilities and intended operations of the aircraft."



"BETA recommends the FAA revise the SFAR rules §91.151, §91.167, §135.209, and §135.223 to add an option for use of a **performance-based** reserve that can be determined based on the capability of the aircraft and the intended flight plan."



"Eve recommends the FAA introduces in the SFAR more practical **performance-based** energy reserve requirements applied for routes planning definition, considering the type of energy used by the powered-lift aircraft which guarantee equivalent level of safety margins regarding the intended concept of operation applied for each type of aircraft (shorter range, alternate landing sites, energy capacity, performance capabilities). "



"Joby champions **performance-based** reserve frameworks that bolster mission-specific range and endurance hazard evaluations."



"Revise the existing fuel reserve requirement to a **performance-based** standard for powered-lift to maintain an equivalent level of safety. "

## European applicants asking for a performance-based approach:



"Language should be included such as "as determined by the Administrator" that would permit future operators to use **performance-based** reserve solutions."



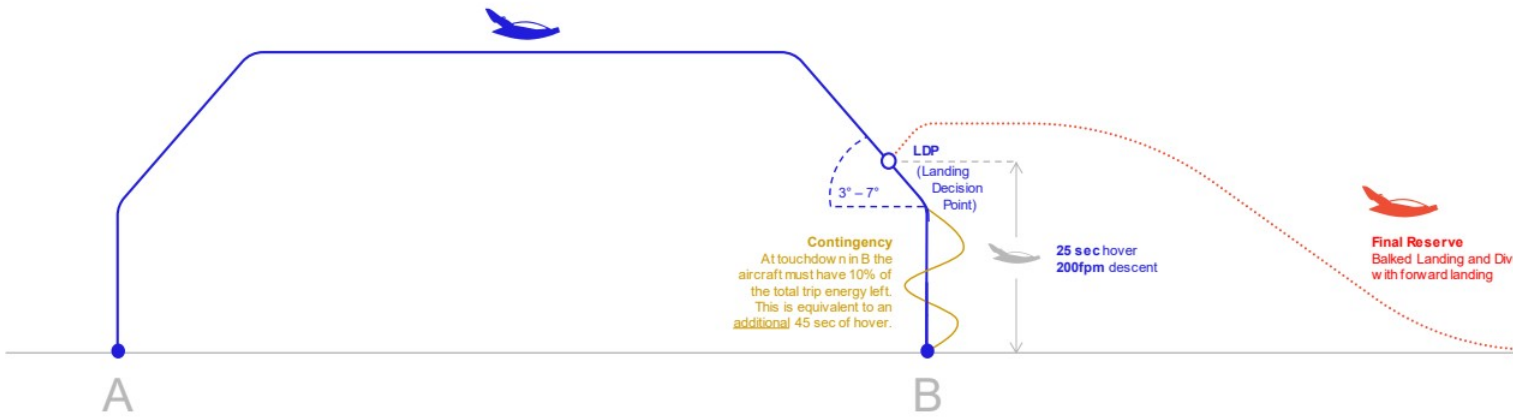
"Given the variation of aircraft designs within the powered-lift category, we encourage the FAA to take a **performance-based** approach, setting fuel requirements based on the performance and the type of operation of the specific aircraft"

# Deep dive on EASA Part IAM and implications for Lilium

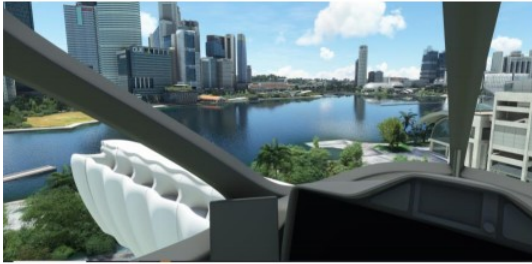
## Part IAM Reserves Requirements

**Contingency** 10% of trip energy at touchdown

**Final Reserve** Ability to balk landing and divert



## Validated landing performance in ~750 landings with different pilots



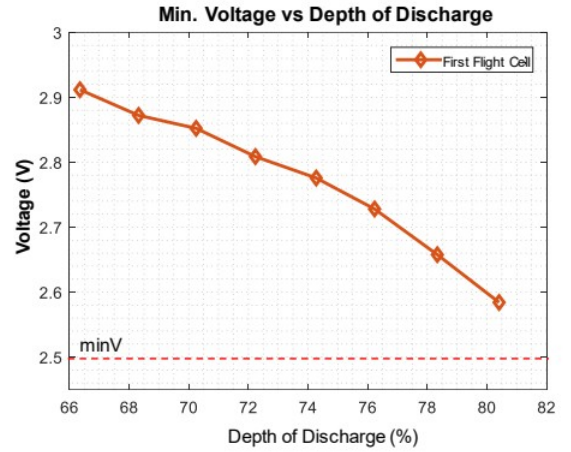
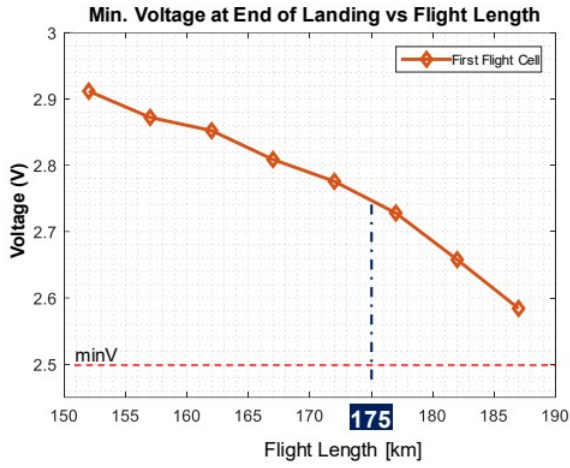
- Mixed reality 3D simulator with motion platform
- Validated control laws and representative cockpit
- Night, rain and wind simulations
- Provides statistical evidence for landing performance



**Pilots consistently executed landing in <25 sec. hover leaving +45 sec. Part IAM hover reserve**

# We've been intensively testing our cells based on reference flight profile (1/2)

## Iterative testing of max range missions based on reference flight profile

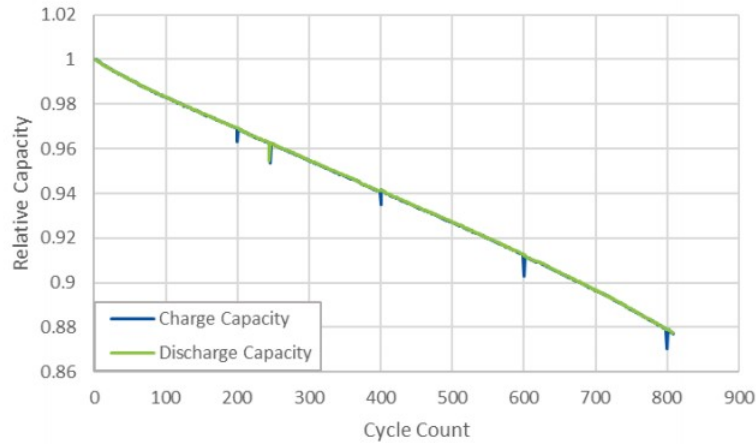


### CONCLUSION

Subtracting PART IAM reserves yields 175 km operational range (achieved in tests)

## Our cells show similar cycle life as standard Li-ion cells'

### Ionblox cell testing – Cycle capacity summary



### Key highlights

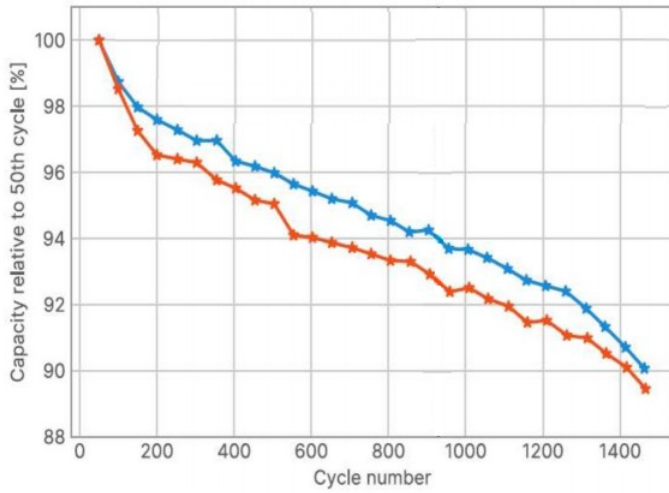
- Rate: 1C / 1C
- Depth of discharge: 100%
- Voltage: 2.5 – 4.2 Volts
- Format: Full Size Pouch



**88% capacity retention over 809 full cycles**



## Cycle Life increases with real flight profiles



- Charge rate: 2C (30 min charge)
- Charge End: 100%
- Profile: Reference Flight Profile
- Peak Power: 2.9 kW/kg
- Capacity check: every 50 cycles
- Flight Distance: ~130km



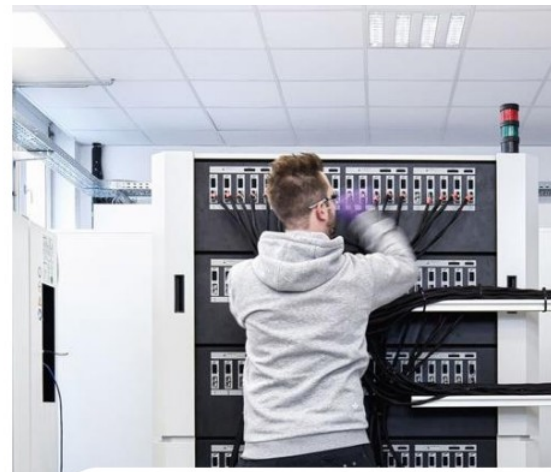
Sources: Liliam inhouse testing of cells performance



Cell n°1



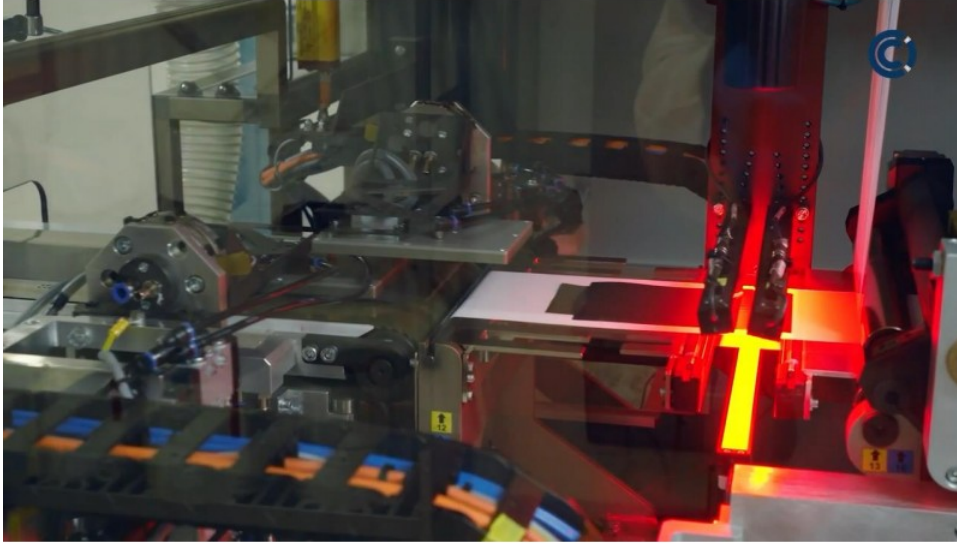
Cell n°2



- **No adverse effects on cycle life found from high power pulses** at take-off and landing and the **fast charge**
- **88% capacity retention over 1450 flight cycles** (business case target is 800 cycle)
- **Avoiding discharge to 0%** due to reserves at landing **increases cycle life significantly**

10 DO YOU HAVE SUPPLIERS OF THOSE CELLS?  
Will it not take years to set up production for those new cells?

## Deep dive on our production ramp-up with CustomCells

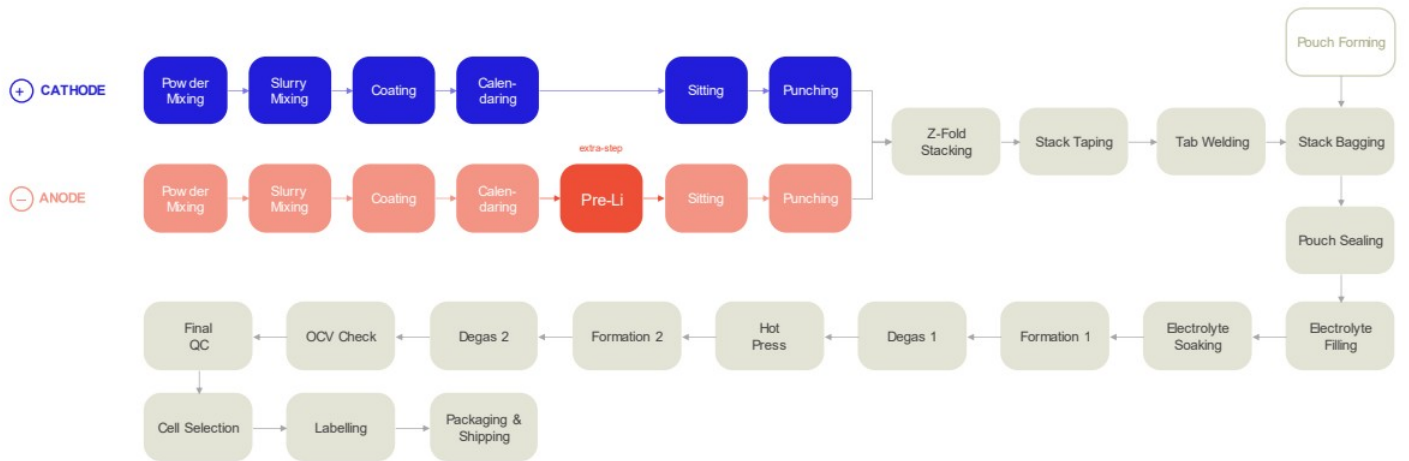


 Sources: Lilium, CustomCells

### Key highlights

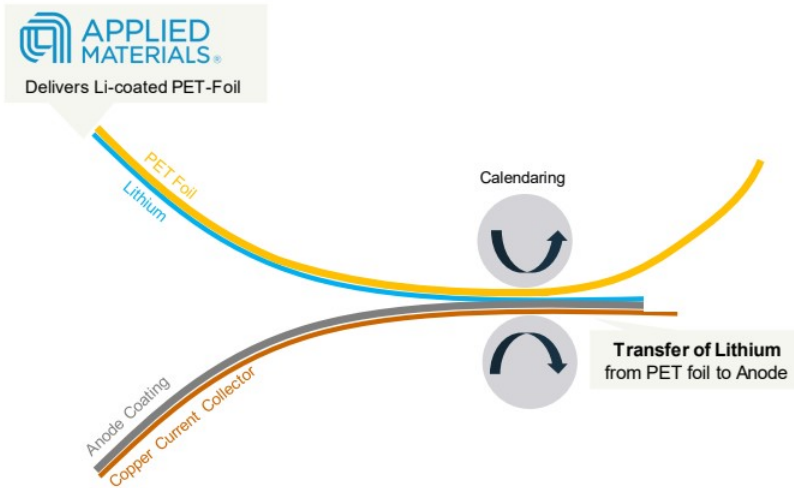
- **Dedicated production line** for Lilium
- **Shipping cells every week**
- Prototype production **started 2021**
- **Compliant with aerospace traceability and conformity**
- **State-of the art electrode at cell production machine**

# Lilium's cells can be manufactured on standard, available manufacturing lines



# Deep dive on Pre-Lithiation: improving cell capacity and cycle life

## Pre-Lithiation set-up at CustomCells production line (illustrative)



- **Simple “Calendaring”** process
- **Pre-Lithiation can be done with most Li-Ion Chemistries** and increases Energy and Cycle Life
- **Si Anode can be used without Pre-Lithiation** but with lower capacity
- **Currently many high performance cells in development** using Pre-Lithiation

# We are de-risking our battery production thanks to a multi-sourcing approach

## Primary cell production with CUSTOMCELLS®

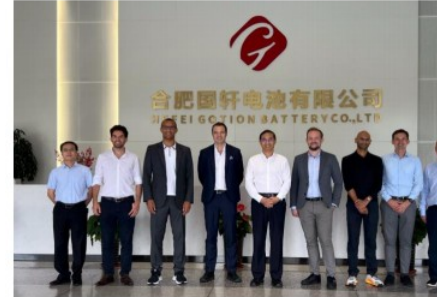
- Prototype cells production of the Ionblox technology in increasing numbers
- Collaboration towards consistent aerospace grade quality

## New partnership with InoBat (supported by Gotion )

- Inobat to produce Lilium battery cells, with support from Inobat investor Gotion High-Tech
- Gotion High-Tech is one of the world's largest manufacturers of battery cells, contracted for 80% of Volkswagen Group's future battery demand
- Inobat production due to start in early 2024



We have **two credible partners** for battery manufacturing



# Battery performance improvement roadmap

**Incremental energy increase** using proven technologies, existing partners, and manufacturing lines

Target 2026

## Step 1: Achieve up to 350 Wh/kg

- Existing Chemistry
- Mechanical improvements to cell overhead weight

Target 2028

## Step 2: Achieve up to 400 Wh/kg

- Current Si Anode technology
- High Nickel Cathode **such as NMC9XX**
  - Big trend in automotive to go to high Nickel
  - Contains less Cobalt
  - Provides more energy
  - Existing production process and chemistry family



**We are continuously investing together with our partners to stay on the cutting edge of battery technology**

# We believe energy density will increase by ~4.5% p.a. and Lilium capabilities will enable a wider portfolio of electric aircraft

**eCTOL (electric conventional take-off and landing)**

Technology enables larger regional electric aircraft with runway take-off and landing capability, replacing highly carbon intense short-haul flights (e.g., 50-100 seat airliners, business jets, cargo and military aircraft)



2040

1100 KM

2035

940 KM

2030

640 KM

**eVTOL (electric vertical take-off and landing)**

Increase range of existing eVTOL platform by leveraging battery improvements



2040

480 KM

2035

400 KM

2030

275 KM

2025

175 KM



Energy density improvement<sup>1</sup>



Note: Targeted aircraft development vision through 2040 estimates based on Company analysis. The illustration of future aircraft capabilities is forward-looking, subject to significant uncertainties and contingencies, many of which are beyond Lilium's control and are based upon assumptions with respect to future decisions and events, which are subject to change. Actual results will vary & those variations may be material. Nothing in this presentation should be regarded as a representation by any person that future aircraft capabilities will be achieved, as described herein. 1. Estimate based on Physicsworld and Lithium-ion batteries historical improvement.



# The battery dominates eVTOL performance

Our battery is a clear competitive  
advantage and moat to our eVTOL  
technology.

LILium



 LILIUM

Q&A

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**Lilium Announces Partnership for High-Volume Production of Lilium Jet Battery Cells**

- *Lilium and InoBat extend existing partnership to prepare large-scale production of Lilium's high-performance battery cells.*
- *InoBat, supported by its investor and partner Gotion High-Tech, will produce Lilium's battery cells at its Volta I and future Volta II factories in Voderady, Slovakia*
- *Gotion High-Tech is one of the world's top 10 manufacturers of battery cells, supplying Volkswagen Group with Unified Cell that covers the majority of VW group's future battery demand.*
- *InoBat's Volta II factory will have up to 4GWh of production capacity.*
- *Gotion High-Tech will support Inobat to ramp-up the production at the Volta II factory.*

**Munich, Germany, November 10, 2023:** Lilium N.V. (NASDAQ: LILM), developer of the first all-electric vertical take-off and landing ("eVTOL") jet, announced today that it is extending its existing partnership with InoBat. InoBat is expected to provide high-volume production of the Lilium Jet's high-performance battery cells. The continued partnership reaffirms Lilium's multiple-sourcing strategy for cell production and will contribute towards securing a healthy supply of Lilium's battery cells for entry into service of the Lilium Jet and the years thereafter.

InoBat will build Lilium Jet battery cells at its existing Volta I and future Volta II plants in Voderady, Slovakia. Production at the Volta I plant is due to start in early 2024. The Volta II plant will be InoBat's first gigafactory with up to 4 gigawatt hours (GWh) of production capacity, just a fraction of which is expected to be required to supply Lilium's battery cell needs in the coming years. Gotion High-Tech, supplier of the Unified Cell that is due to be installed in up to 80% of all Volkswagen Group's future electric vehicles, holds a 25 percent stake in InoBat. Gotion High-Tech, whose largest external shareholder is Volkswagen Group, will contribute resources and manufacturing know-how to ramp-up the capacity at InoBat's Volta II plant.

Lilium, which participated in InoBat's recent Series C investment round, will retain its valuable intellectual property rights in the Lilium Jet battery technology. Multiple third-party testing campaigns carried out on prototype Lilium battery cells have demonstrated the energy capacity, power and cycle life of this cutting-edge battery cell technology.

Yves Yemsi, COO of Lilium, said: "We are delighted to move ahead with InoBat towards high-volume production of Lilium Jet battery cells. Consistent with best practice and our stated strategy, we expect that multiple cell suppliers will support our aircraft program, with the aim to ensure a reliable volume production of battery cells for years to come."

Marian Bocek, Co-Founder and CEO of InoBat remarked: "Lilium's vision to revolutionize air travel and its commitment to innovation strongly align with our core strategy in the global EV market. With the support of Gotion High-Tech, we look forward to taking our ongoing collaboration with Lilium to the next level and helping Lilium secure high-volume, high-quality deliveries of its advanced battery cells."

Steven Cai, Board Member and CTO at Gotion High-Tech commented: "At Gotion High-Tech, we aim to play a pivotal role in the transition towards a carbon neutral world. Through our partnership with InoBat, we look forward to bringing high-performance electrical power to Europe's eVTOL industry."

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**Lilium****Contact information for media:**

Meredith Bell  
Vice President, External Communications  
+41794325779  
[press@lilium.com](mailto:press@lilium.com)

**Contact information for investors:**

Rama Bondada  
Vice President, Investor Relations  
[investors@lilium.com](mailto:investors@lilium.com)

**About Lilium**

Lilium (NASDAQ: LILM) is creating a sustainable and accessible mode of high-speed, regional transportation for people and goods. Using the Lilium Jet, an all-electric vertical take-off and landing jet, designed to offer leading capacity, low noise, and high performance with zero operating emissions, Lilium is accelerating the decarbonization of air travel. Working with aerospace, technology, and infrastructure leaders, and with announced sales and indications of interest in Europe, the United States, China, Brazil, UK, and the Kingdom of Saudi Arabia, Lilium's 800+ strong team includes approximately 450 aerospace engineers and a leadership team responsible for delivering some of the most successful aircraft in aviation history. Founded in 2015, Lilium's headquarters and manufacturing facilities are in Munich, Germany, with teams based across Europe and the U.S. To learn more, visit [www.lilium.com](http://www.lilium.com)

**About Gotion High-Tech**

Gotion High-Tech Co., Ltd., as the first private enterprise in the power battery industry to enter the capital market in China, was listed on the Shenzhen Stock Exchange in May 2015. The Company specializes in the development and manufacture of power batteries for new energy vehicles, energy storage application, power transmission and distribution equipment, etc. Gotion High-Tech is a technology-based Company focused on power battery technology research and development and innovation. It is one of the earliest enterprises engaged in the independent research and development, production and sales of new energy vehicle power lithium-ion batteries in China. Gotion High-tech has global operations and has carried out strategic cooperation with Volkswagen, Tata Group, Vinfast and Jinko, among others.

**About InoBat**

InoBat specialises in pioneering research, development, design, manufacturing, supply and recycling of innovative electric batteries custom-designed to meet the specific scope and requirements of global mainstream and specialist OEMs and energy sector participants. InoBat's sector focus is on the automotive, commercial vehicle, motorsport, and aerospace sectors. InoBat provides innovative solutions across the entire value chain thanks to its "C2C" circular value-chain InoBat is backed by a strong consortium of strategic investors and partners such as Rio Tinto, Gotion, Amara Raja, and the International Finance Corporation of the World Bank Bank, and it original sponsors the IPM Group, Avanea and Across. InoBat achieved R&D grant financing under the EU sponsored programme, Important Projects for Common European Interest (IPCEI), and additional support from the Slovak Government.

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## Lilium Forward Looking Statements

This press release contains certain forward-looking statements within the meaning of the U.S. federal securities laws, including, but not limited to, statements regarding (i) the future performance and impact of innovations of Lilium N.V. and its subsidiaries (collectively, the “Lilium Group”), (ii) the capacity of existing battery technology to meet the energy demands of the Lilium Jet, (iii) the design, development and manufacturing of the battery cells for the Lilium Jet, (iv) the expected results of the business and business model of the Lilium Group, (v) the Lilium Group’s ability to successfully patent our intellectual property and the future performance of our innovations, and (vi) the Lilium Group’s partnership with Inobat, including Inobat’s planned manufacture of batteries for the Lilium Jet at its Volta I plant and planned Volta II plant and its ability to scale to high-volume production of batteries. These forward-looking statements generally are identified by the words “aim,” “anticipate,” “believe,” “could,” “expect,” “estimate,” “future,” “intend,” “may,” “on track,” “plan,” “prepare,” “project,” “should,” “strategy,” “will,” “would” and similar expressions. Forward-looking statements are predictions, projections, and other statements about future events that are based on management’s current expectations with respect to future events and are based on assumptions and subject to risk and uncertainties that are subject to change at any time. Actual events or results may differ materially from those contained in the forward-looking statements. Factors that could cause actual future events to differ materially from the forward-looking statements in this press release include the inability of Inobat to achieve high-volume production of batteries and/or the failure of existing battery technology to meet our expectations as well as those risks and uncertainties discussed in Lilium’s filings with the U.S. Securities and Exchange Commission (the “SEC”), including in the section titled “Risk Factors” in our Annual Report on Form 20-F for the year ended December 31, 2022, on file with the SEC, and similarly titled sections in Lilium’s other SEC filings, all of which are available at [www.sec.gov](http://www.sec.gov). Forward-looking statements speak only as of the date they are made. You are cautioned not to put undue reliance on forward-looking statements, and the Company assumes no obligation to, and does not intend to, update, or revise these forward-looking statements, whether as a result of new information, future events or otherwise.

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