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ENERGY STORAGE

EQUITY OFFER FOR EU €75 M USA $85 M

LAST POST-MONEY VALUATION EUR 791.2M

NO FURTHER EQUITY NEEDED TO TRL 9

ENERGY PRODUCTION

SOLVING PROBLEMS WITH HIGH IMPACT POTENTIAL

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Problem-Risk-Need-Analysis

Solution for:

AI
Data Centers
Remote Areas
Critical Infrastructure

No critical chain reaction

No risk of explosion

No meltdown risk

No plutonium or uranium 235

Non-weapons-grade material

Secure energy supply for long period

No uncontrolled - transuranic nuclear waste > 100,000 years

+ USP – No Tl-208 production

Zero CO2 emission

Non-volatile energy

No large powerlines

High power density

High profitability with global impact

Low land-use requirements for systems

Affordable high temperature heat > hydrogen or electricity

+ Proof of concept

SOLUTION: Compact, Modular, Safe, Profitable

SOLUTION - 2 GROUNDBREAKING INNOVATIONS

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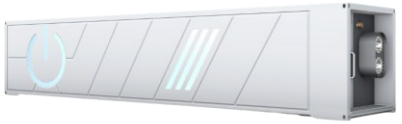
Dual Income
modular & scalable

NON-Criticality
Regulatory
Pathway
"Nuclear Adjacent"

NON-Nuclear

ADES
Accelerator **D**riven **E**nergy **S**ource
Energy Production



ADVANCED NUCLEAR ENERGY TECH
25 MW(th) - Thorium based - Accelerator Driven – Molten salt
TRL 4.5 / 9 (NOT READY YET-> capital round)
No critical chain reaction | No transuranic waste
No uranium-235 | No plutonium | No thallium-208

DUALstore PLUS
High Temperature Heat & Electricity
Energy Storage System

ADVANCED MOLTEN SALT STORAGE TECH
5-100 MWh modular hybrid - CAL store & E store
TRL 6.5 & 9 / 9
Highly efficient | Stable operation across extremely
high and low ambient temperatures

DUAL INCOME – CLIENT PRICING & INVESTOR RETURNS

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20-YEAR REVENUE STREAM

ENERGY AS A SERVICE

DUAL INCOME

Simplified economics: what the customer pays vs. what Emerald Horizon earns

(20-years contract terms)

ADES
"moonshot"

ADES

Dispatchable thermal-to-power module
Energy-as-a-Service (EaaS)

WHAT THE CUSTOMER PAYS

8.5¢ / kWh

Fixed electricity price
Contract term: 20 years

Comparable long-term industrial PPAs

WHAT EMERALD HORIZON EARNS

+95% Equity IRR

≈ $3.58m net profit / year
(per 1 ADES unit)

Assumes 85% debt / 15% equity @ 5%

CAPEX: $25m (±15%)

DUALstore Plus
„stable income"

DUALstore

Storage-as-a-Service
stable income profile

WHAT THE CUSTOMER PAYS

$43,125 / month

+ 2.0¢ / kWh throughput
Contract term: 20 years

Client can monetize storage services

WHAT EMERALD HORIZON EARNS

+16% Equity IRR

≈ $0.16m net profit / year
(per 1 DUALstore Plus client)

Baseline: 7× CALstore + 3× E-store

CAPEX: $6.6m

KEY ASSUMPTIONS (FOR PROFESSIONAL BACK-CALC)
ADES: 10 MWe net (=80 GWh/yr @ ~95% uptime); cost base = 1.7c/kWh (CAPEX+OPEX); FX 1 EUR = 0.85 USD. Financing: 85/15 debt/equity @ 5%; tax 26%. DUALstore baseline as noted.
No customer CAPEX. Excludes indirect income (e.g., carbon credits). Illustrative only; not audited. We already executed EaaS end-to-end (proof of operability).

ADES - ACCELERATOR DRIVEN ENERGY SOURCE

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The scalable and risk-optimized solution for CO_2-free energy

Output:
High temperature heat

To generate:
Heat
Electricity
Hydrogen

ON/OFF switch

- ADES has a **passive-safe ON/OFF control unit**.

AI-powered optimization

- ADES **leverages AI** to **adjust its power output** based on the installation location.
- ADES thereby ensures **optimal performance** in **diverse environments**.

Significantly reduced nuclear waste

- **~ 80%** of thorium is **converted** into energy. Even the remainder contains raw materials that **can be reused**. No final repository for nuclear waste is hence necessary.
- ADES **produces ~0% transuranic waste** of plutonium, neptunium, americium and curium, ... known as nuclear waste.
- It only produces radioactive fission products with short half-lives.

No critical chain reaction

- **ADES runs subcritically**.
- When the injector impulses the thorium, it triggers a reaction - **but no critical chain reaction** - making ADES much safer than conventional nuclear power plants.
- Zero explosion risk since there is NO overpressure and NO water / steam.
- No thallium-208 production

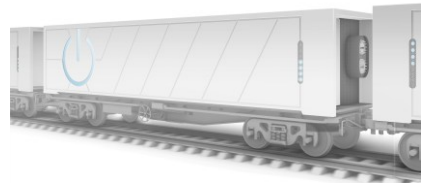
Minimum maintenance

- The final ADES module **does not require continuous maintenance.**
- A **Safety Security Environment Software** will ensure safe control (separate energy from NES- see patent)
- Expected - No refueling required for 20 years
- Low operating expenses (OPEX)

READY FOR ORDER EST. 2029

1 x ADES module: **25 MW(th) = 10 MW(el) for 20 years**

.. can be combined to achieve higher energy output



.. can be delivered worldwide and installed as plug-and-play

ADES – PROTOTYPE SETUP –> SERIAL PRODUCT TRL 9

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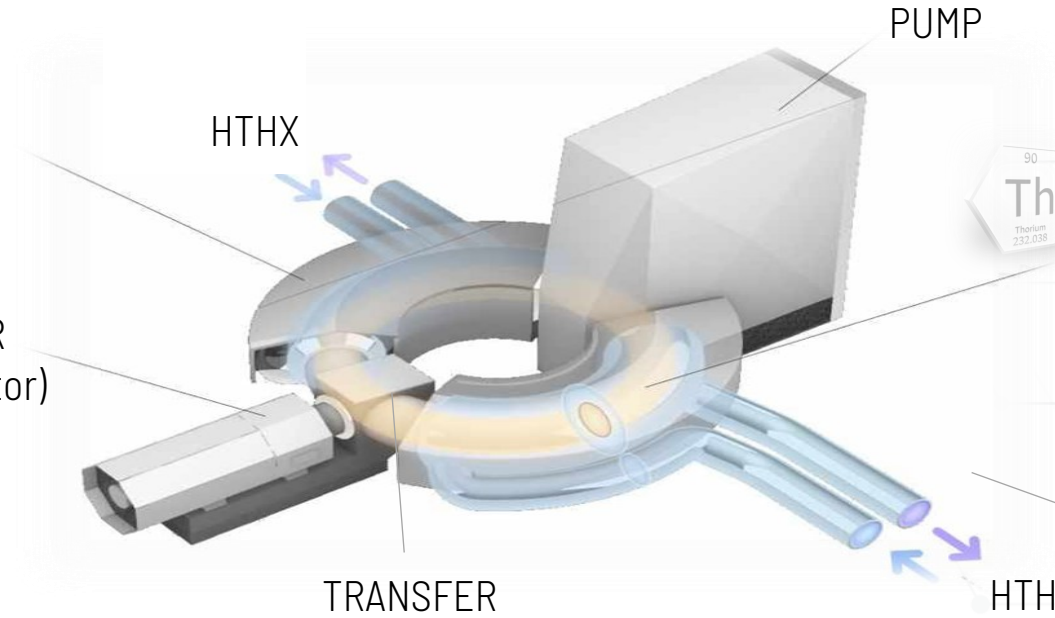
TIER-1 execution partner

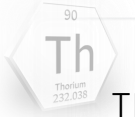
Co-Development to achieve TRL 9

Manufacturing

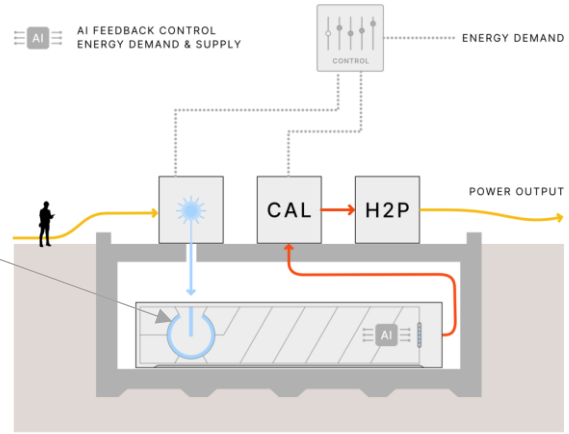
Supply Chain

Reality check: All prototype components already exist





THORIUM-LOOP



Censored for security reasons

DUALstore PLUS - MODULAR 5 TO 100 MWh - FIRST BANKABLE PRODUCT

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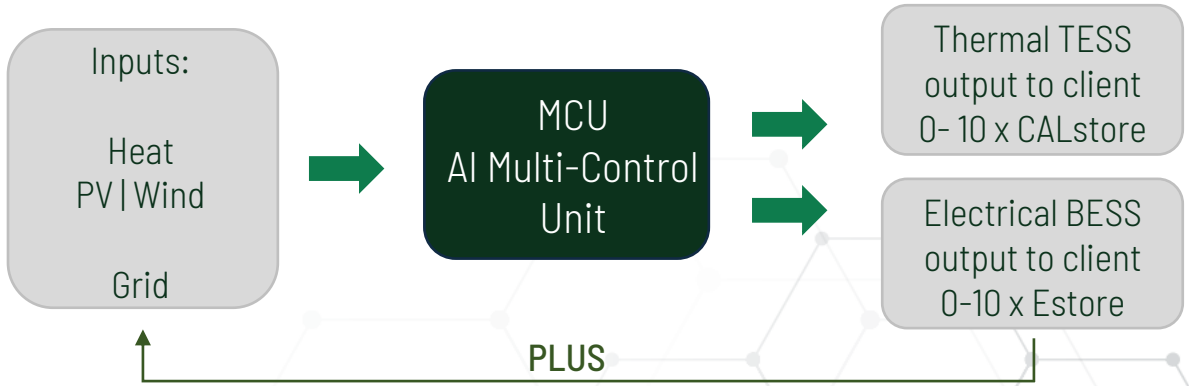
Hybrid storage system combining high-temperature heat (TESS) and electricity storage (BESS).

READY FOR ORDER EST. Q3 2026

- CALstore: 5 MWh(th) molten-salt thermal storage; efficiency >98%; unlimited cycling (as stated)
- Estore: ~5 MWh(el) (LFP), ≥ 8,000 cycles; system efficiency ~94%; IP55 / C4 (as stated)
- MCU orchestrates thermal & electrical flows (AI control unit)
- PLUS function: Selling surplus electricity back to the grid, generating additional revenue
- Deployable worldwide starting in 2026

Delivery time:
Estore 4 months
CALstore 20 months



Designed for 20-year EaaS contracts and global deployment.

EaaS Proof: Emerald Horizon did already a full cycle of acquisition → 20year contract → billing → metering → maintenance → insurance → bank financing, Raiffeisen

CALstore (TESS) – HEAT STORAGE SYSTEM - PROTOTYPE SETUP

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Government-funded, with ongoing oversight & periodic audits

Breaking news: CALstore PROTOTYPE CELL READY & VALIDATED

CALstore is a 5 MWh molten salt heat storage system that balances energy oversupply with demand. It supports ADES, is part of DUALstore PLUS, and can also operate as a stand-alone system.

CALSTORE
high temperature liquid-salt energy storage system
FFG Austrian Research Promotion Agency
The prototype development:
Modulare high temperature-liquid-salt energy store
is funded by FFG within their base-programme!
2023-2026 FFG-project-number: 903946

- The system maintains stability in both **low and high ambient temperature** conditions.
- Salt has a high energy density, CALstore **stores large amounts of energy (5 MWh)** which can be released when needed.
- The system is **entirely water-free**, eliminating the risk of vapor pressure or detonation gas reactions.
- **Abundant, cheap, and well available salts** like potassium nitrate and sodium nitrate are used. These salts have the capacity to store substantial amounts of energy in a minimal space.
- **The configuration is adaptable** (salt mixture, storage capacity and temperature range) depending on the specific energy input and output requirements. The **scalability of the system** ensures mass-production.
- The system is not deteriorating; **the storage capacity remains constant** over the life-cycle and requires only minimal maintenance.

51 BRAINS BEHIND THE INNOVATION & TIER-1 PARTNERS WORLDWIDE

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Team & Supervisory Board

EXECUTIVE TEAM – Leaders with experience at the World Bank (former Director), the IMF, the Austrian National Bank (former Governor), PwC, and including a former Minister for Infrastructure, Technology and Innovation

SCIENTIFIC TEAM – Experts in nuclear physics, accelerator tech (ex-CERN), mechanical engineering, medical technology, and industrial manufacturing

TIER-1 EXECUTION PARTNERS – for regulatory affairs, co-development, manufacturing, supply chain, financial support

Not all employees are shown.

Proven Leaders and Scientific Pioneers

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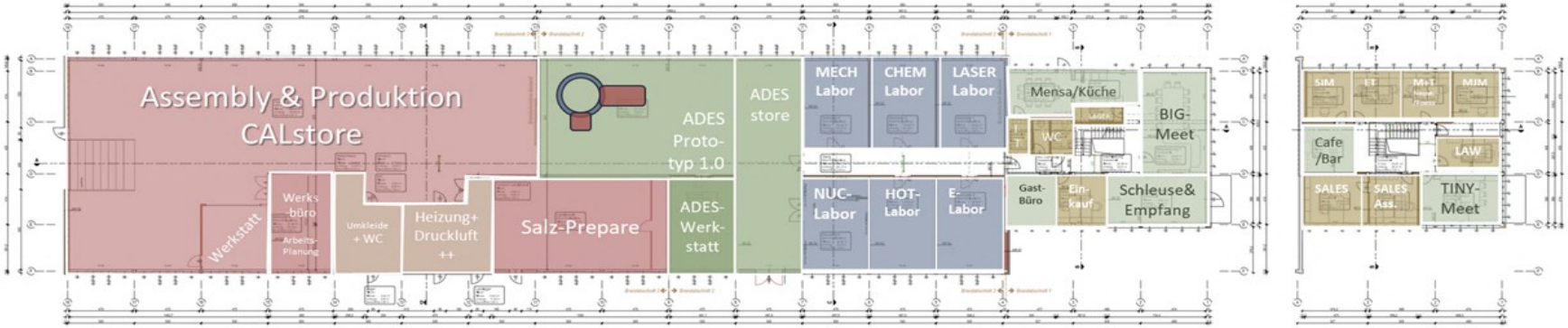
Emerald Laboratorium



TIER-1 partners

TU Graz · VDL · Royal HaskoningDHV (Enhancing Society Together) · FFG (Forschung wirkt.) · Jožef Stefan Institute · BERNARD GRUPPE · JOANNEUM RESEARCH · pillsbury · QBASIS INVEST · pwc

Proud member of GREEN TECH CLUSTER

OFFER FOR INVESTORS

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3-track structure: EU equity + US equity + Slovakia cash relief (non-dilutive)

Equity offers (2 tranches)

Parallel subscriptions in Europe and the U.S.; designed for institutional co-investors.

EU

Emerald Horizon AG (Europe)

€ 75m

Pre-IPO and IPO share tranche (T1)

Max. €25m per co-investor

US

Emerald Horizon USA (Inc.)*

$ 85m

Parallel share tranche (T2)

Non-dilutive cash relief (Slovakia)

SK

€ 75-100m

State-backed incentives / grants to reduce prototype CAPEX/OPEX and protect dilution (cash grant 50-60%; complete prototype area 2x ADES -> TRL 9).

Capital path (simplified)

2026 – IPO EU
EaaS storage rollout (contracts & deliveries)

→

2027 – IPO US
Bankable cashflows + scale manufacturing

→

2029 + Green Bonds
ADES TRL 9 / orders + project finance ramp

- Real paid-in valuation reference (€791.2m post-money) with a peer set that supports billion-scale outcomes (SMR, OKLO, NNE, X-energy: $1–20bn valuation range).
- Scenario-based DCF indicates multi-billion intrinsic value as the company reaches defined technical and commercial milestones (4 valuation scenarios at a 25% discount rate: $4.4 -25.2bn range).
- Dual Income downside protection: DUALstore PLUS enables bankable 20-year EaaS cashflows starting in 2026.
- Milestone de-risking: readiness scorecards translate technical, regulatory, and commercial progress into valuation step-ups.
- Capital-efficient execution: lean core teams and Tier-1 partner delivery, supported by a blended/non-dilutive funding stack ⟶ lower equity dilution per delivered output.
- Proven monetization "prototype": contracting/EaaS activities already generated revenue and validated long-term contracting and bankability.
- Strong alignment and scale-up credibility: founders and early investors remain materially invested.
- VDL confirmation letter (post extensive due diligence) underpins industrialization and supply chain readiness.

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*currently 100% subsidiary

Adaptable based on investor needs, tailored by

pillsbury

READINESS - VALUATION TRIGGERS

What investors underwrite

Readiness scorecards (current)

Company readiness (non-technical)

1935 / 2700

72%

- Execution confidence + governance package
- Data room & diligence package
- Regulatory + bankability checks (lender process - Raiffeisen)

DUALstore PLUS readiness (Estore and CALstore)

1800 / 2700

67%

12M outlook

- Estore (BESS) + CALstore (TES) + MCU (AI control)
- Ready for global deployment from 2026
- Bankable 20-year EaaS structure

ADES readiness (deep-tech)

1590 / 2700

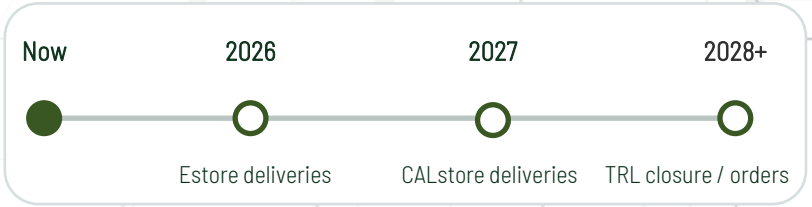
59%

12M outlook

- 3 workstreams: structures/heat loop + accelerator/targets + nuclear release loop
- Prototype components exist; TRL-gated plan
- Use of funds closes DELTA to TRL 9

Note: Readiness scores and triggers are indicative and based on internal underwriting scorecards; offering details are subject to formal documentation. For further details see Appendix (Page 13-15).

Timeline and near-term milestone triggers



Each scorecard is broken down into 27 checks.
Completing key milestones triggers step-ups in the valuation matrix (e.g., higher U.S. tranche valuation and next rounds).

Near-term trigger examples

Regulatory	Pillsbury memo: classification + licensing roadmap (U.S.); EU pathway redundancy
Commercial	20-year EaaS contracts signed; deliveries start (Estore Q3 2026; CALstore 2027)
Technical	Integrated prototype commissioning; safety interlocks + reliability demo closing TRL DELTA
Financing	Slovakia incentives application → €75-100m equity relief; project finance pack
Execution	Tier-1 industrialization (e.g., VDL) plus QA & delivery workplan

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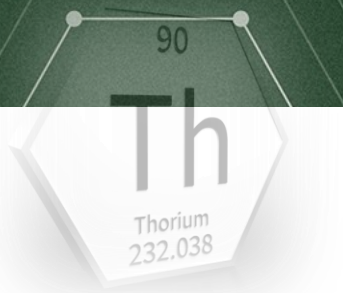

APPENDIX – METRICS – CREDIBILITY

COMPANY READINESS — NON-TECHNICAL SCORECARD

27 underwriting checks to rate execution confidence, regulatory clarity, and commercial bankability (score 0–100).

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3
Under-writing areas

27 checks

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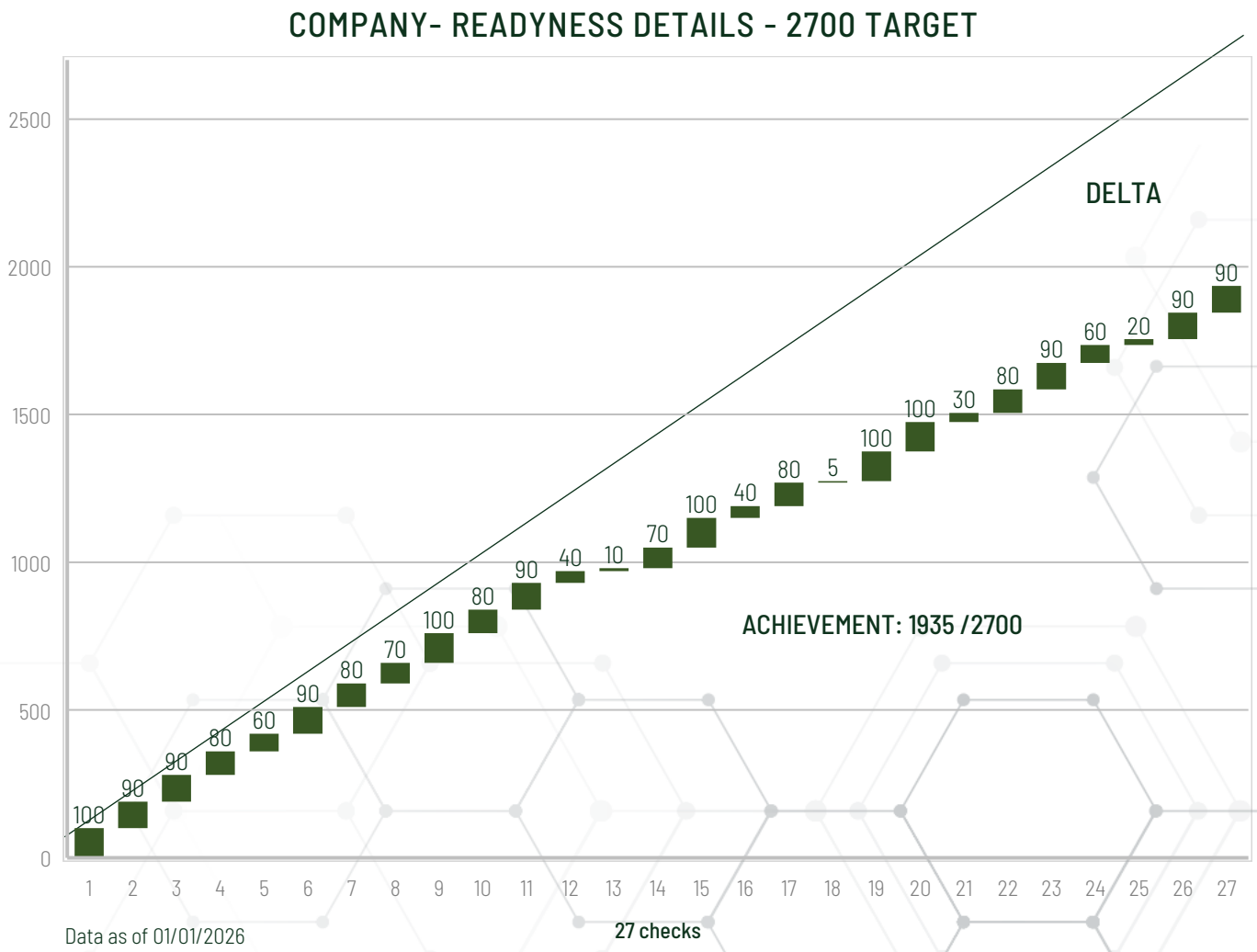
For further details see Investment Proposal

1-9 Concept & Differentiation
10-18 Execution & Profitability
19-27 Regulatory, Sales & Bankability

1	Climate-tech thesis (CO2-free)
2	Dual-track: stable + moonshot
3	EaaS model (Energy-as-a-Service | rev engine)
4	Subcritical USP (lower risk)
5	Fuel strategy (thorium path | no U235)
6	Modular unit (standard container)
7	Scalability (plug-and-play)
8	Industrialization (serial, VDL)
9	Proof package (all components)
10	Team: Mueller/Holzmann/Hofer (+50 brains)
11	AG (PWC) + last paid-in ref (€791.2m)
12	SKCo + ADES prototype scope
13	USCo setup + operating plan
14	EU+SK incentives (dilution buffer; cash relief)
15	Capital efficiency & Governance
16	Dual exit plan (EU IPO + US IPO)
17	Co-dev + mfg contracts active (VDL)
18	Actual Income
19	Market demand validated (multi-region)
20	EaaS PV full-cycle proof (EaaS PV)
21	Bankable EaaS + project finance pack
22	Data room + diligence package ready
23	Reg ADES - nuclear adjacent by design (thesis)
24	Reg DUALstore PLUS - compliance map (low reg)
25	Reg readiness (partners Pillsbury, HaskoningDHV)
26	Customer value (payback/savings)
27	Unit economics + predictable cost (EaaS)



DUALstore PLUS

Technical Readiness – Milestones achieved - *DELTA* remaining part to TRL 9

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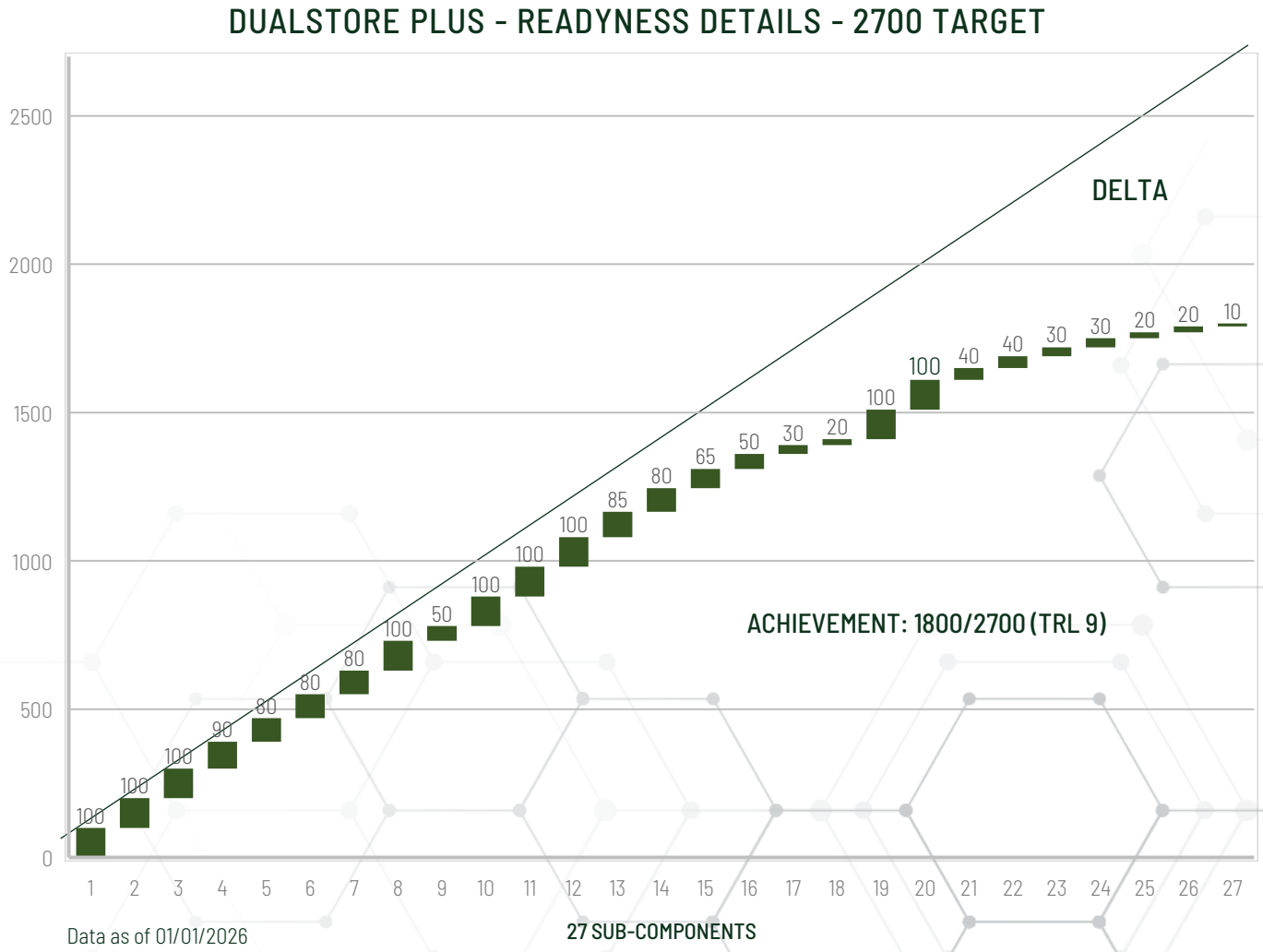
3 main components

27 sub-components

For further details see Investment Proposal

1-9 Estore (BESS) - stand-alone or DUALstore
10-18 CALstore (TES) - stand-alone or DUALstore
19-27 MCU (Master Control Unit) DUALstore

1 Basic validated foundation
2 Concept defined validated
3 Safety lifecycle environment
4 Electrical architecture hybrid
5 KPIs degradation revenue
6 Stability power quality
7 Compliant market participation
8 Repeatable maintainable certified
9 Grid-support demonstrated resilience
10 Basic validated foundation
11 Concept defined validated
12 Feasibility temperatures interfaces
13 Architecture sealing insulation
14 Performance losses sizing
15 Stability ramps gradients
16 Integration charging sources
17 Productizable, manufacturable, serviceable
18 Field-grade availability guarantees
19 Basic validated foundation
20 Concept defined validated
21 Orchestration data boundaries
22 Control comms cybersecurity
23 KPIs testable latency
24 Constraints failsafes validated
25 Multimarket optimization priorities
26 Fleetgrade OTA hardening
27 EnergyOS governance SLA



ADES

Technical Readiness – Milestones achieved – *DELTA* remaining part to TRL 9

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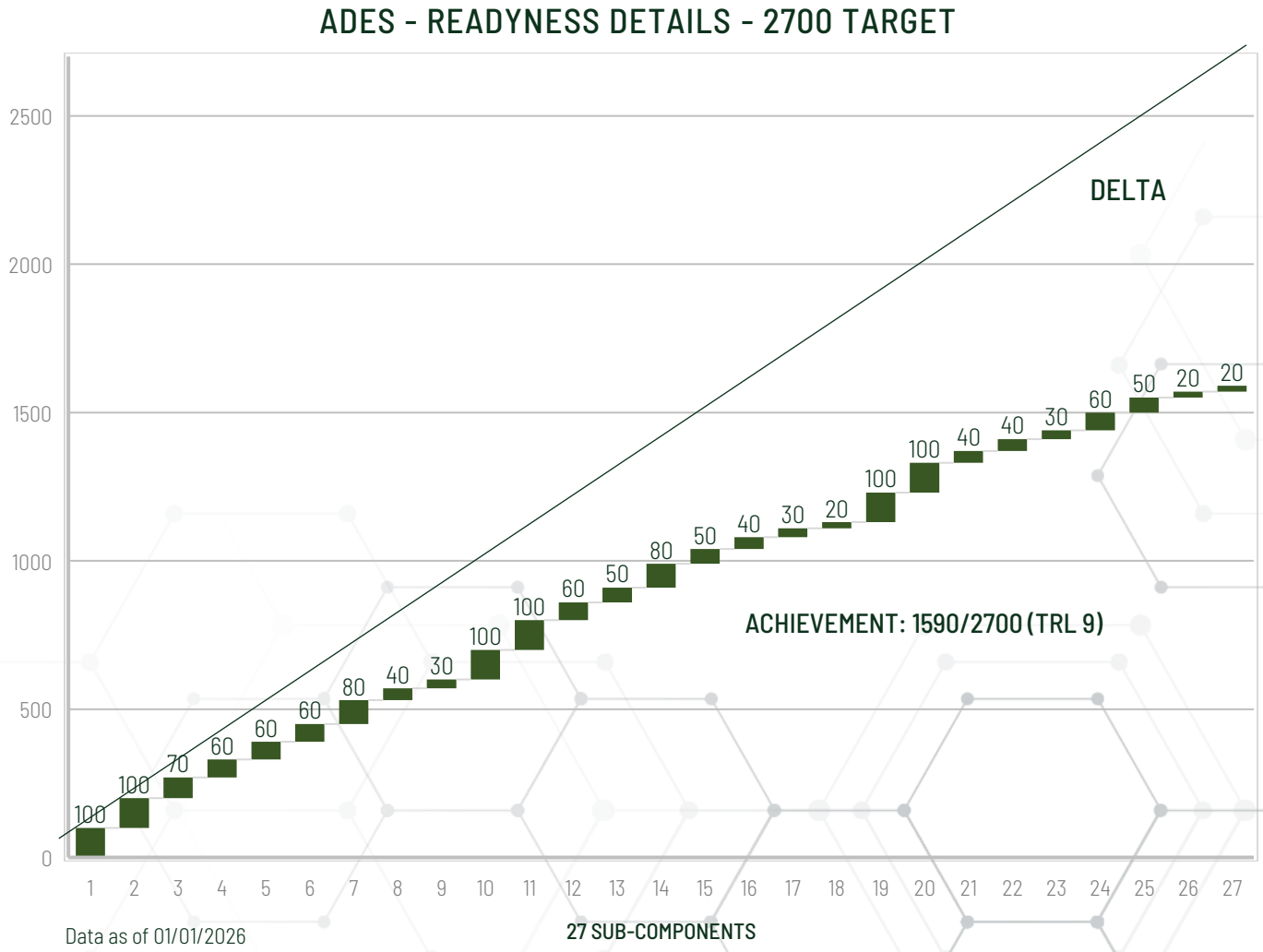
3 main components

27 sub-components

Use of funds to get to TRL 9: See Investment Proposal

1-9 Structures (non-NUC) & Heat Transfer Loop
10-18 Accelerator (ACC) + Plasma + Targets
19-27 Nuclear Energy Release & Energy Transfer-Salt Loop

1	Basic validated foundation
2	Concept defined validated
3	Structural civil interfaces
4	Primary heat-exchangers readiness
5	Heat-transfer design
6	Heat delivery rejection
7	Thermal insulation strategy
8	Maintainability replaceability provisions
9	System integration acceptance
10	Basic validated foundation
11	Concept defined validated
12	Performance operating envelope
13	Accelerator design maturity
14	Beam optics readiness
15	Target engineering readiness
16	Diagnostics coverage readiness
17	Safety interlocks protection
18	Integration commissioning readiness
19	Basic validated foundation
20	Concept defined validated
21	Thermo-hydraulic basis
22	NUC vessel readiness
23	Pumping control readiness
24	Salt conditioning concept
25	Sensors hot metrology
26	Containment drain emergency
27	Commissioning reliability demonstration



ADES ENERGY EQUATION - TRANSMUTING & HARVESTING

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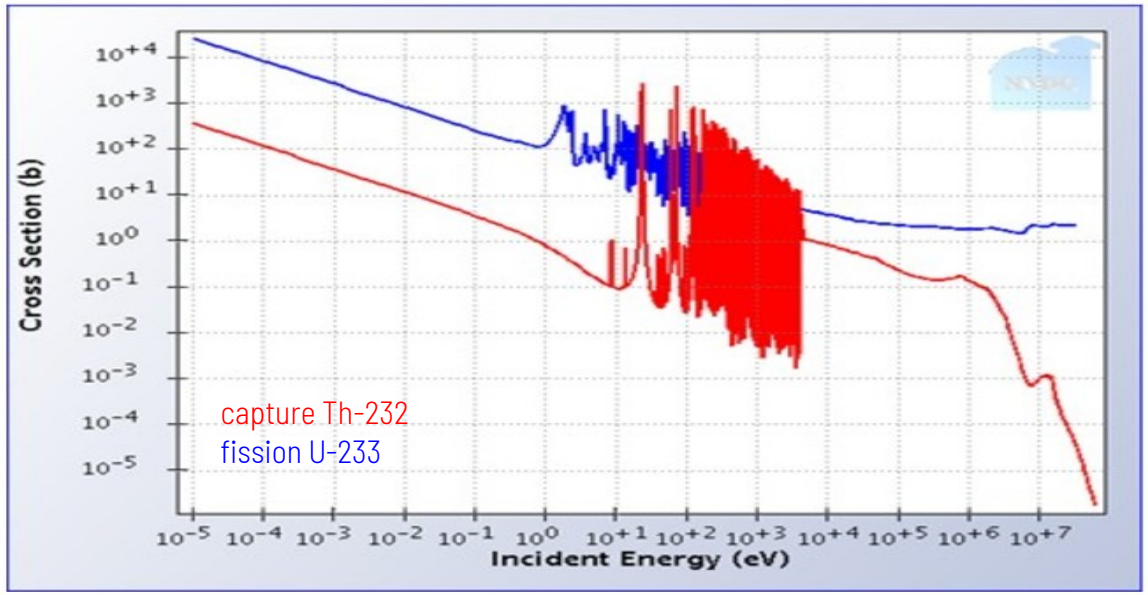
Physics-Based Validation

$$E_{\text{fission,total}}(T) = \int_0^T \left(3.204 \times 10^{-11}\right) \sigma_{f,\text{U233}}^{\text{therm}}\, \phi_{\text{therm}}\, N_{\text{U233}}(t)\, dt$$

$$= \left(3.204 \times 10^{-11}\right) \sigma_{f,\text{U233}}^{\text{therm}}\, \phi_{\text{therm}}\, \frac{\lambda_{\text{Pa233}}\, \lambda_{\text{Th233}}\, \sigma_{c,\text{Th232}}^{\text{epi}}\, \phi_{\text{epi}}\, N_{\text{Th232}}(0)}{\left(\lambda_{\text{Pa233}} - \lambda_{\text{Th233}}\right)\left(\lambda_{\text{Th233}} - \sigma_{c,\text{Th232}}^{\text{epi}}\phi_{\text{epi}}\right)\left(\sigma_{f,\text{U233}}^{\text{therm}}\phi_{\text{therm}} - \lambda_{\text{Pa233}}\right)}$$

$$\times \left[\frac{1 - e^{-\sigma_{c,\text{Th232}}^{\text{epi}}\phi_{\text{epi}}T}}{\sigma_{c,\text{Th232}}^{\text{epi}}\phi_{\text{epi}}} - \frac{1 - e^{-\lambda_{\text{Th233}}T}}{\lambda_{\text{Th233}}} - \frac{1 - e^{-\lambda_{\text{Pa233}}T}}{\lambda_{\text{Pa233}}} + \frac{1 - e^{-\sigma_{f,\text{U233}}^{\text{therm}}\phi_{\text{therm}}T}}{\sigma_{f,\text{U233}}^{\text{therm}}\phi_{\text{therm}}}\right]$$

$$\phi_{\text{total}} = \frac{S_{\text{ext}}}{V_{\text{core}}}\frac{1}{1 - k_{\text{eff}}}, \qquad \phi_{\text{therm}} = f_{\text{therm}}\, \phi_{\text{total}}, \qquad \phi_{\text{epi}} = f_{\text{epi}}\, \phi_{\text{total}}$$



System Parameters (typical magnitudes)

Symbol	Description
V_{core}	Active reaction volume
S_{ext}	External neutron source strength (e.g. Li(p,n) or D(d,n))
k_{eff}	Effective neutron multiplication factor (subcritical)
T	Operation time horizon
f_{therm}	Fraction of the total neutron flux in the **thermal spectrum**
f_{epi}	Fraction of the total neutron flux in the **epithermal spectrum** ($f_{\text{therm}} + f_{\text{epi}} = 1$)
$\sigma_{c,\text{Th232}}^{\text{epi}}$	Microscopic **capture cross section** of Th-232 for epithermal neutrons (Th-232 → Th-233)
$\sigma_{f,\text{U233}}^{\text{therm}}$	Microscopic **fission cross section** of U-233 for thermal neutrons
$\sigma_{c,\text{U233}}^{\text{therm}}$	Microscopic **capture (non-fission)** cross section of U-233 for thermal neutrons
λ_{Th233}	**Decay constant** of Th-233 → Pa-233 (half-life ≈ 22.3 min)
λ_{Pa233}	**Decay constant** of Pa-233 → U-233 (half-life ≈ 26.97 days)
$N_{\text{Th232}}(0)$	Initial inventory of Th-232 atoms (≈ 10 kg)
$N_{\text{Th233}}(t)$	Transient intermediate isotope concentration
$N_{\text{Pa233}}(t)$	Protactinium-233 atoms produced and decaying to U-233
$N_{\text{U233}}(t)$	**Fissile inventory** of U-233 atoms available for fission
E_{fission}	Average **energy released per fission**

Stable flux realization will be achieved using accelerator-based neutron sources (two complementary solutions will ultimately be available - risk reduction).

For further details see Investment Proposal

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Emerald LaboraTHorium
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www.emerald-horizon.com

ACCELERATOR ENERGY – BUILDING THE FUTURE OF CLEAN POWER

BBC THE EARTHSHOT PRIZE

Emerald Horizon NOMINATED 2025

BULLETIN INNOVATOR

THE REDBULLETIN INNOVATOR

Redaktion | März 2023

future zone

Grazer Unternehmen will einen besseren Atomreaktor bauen

Redaktion | September 2022

Business

Green Future | Innovative Wege zur grünen Zukunft

Redaktion | April/Mai 2021

DER STANDARD

Suche nach Alternativen - Kann Thorium bei der Energiewende helfen?

Redaktion | August 2022

SPIRIT START-UP AWARD