

**BUILDING THE FUTURE OF CLEAN POWER
BEYOND FOSSIL. BEYOND NUCLEAR. BEYOND SMRS. BEYOND LIMITS**



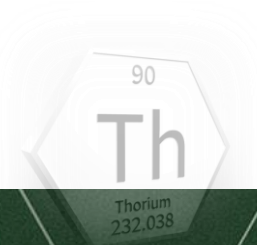
ENERGY STORAGE



ENERGY PRODUCTION

SMRX

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SMRX

Subcritical Minimodular Reaktor Xcelerator



SMR - Small Modular Reactor



Clean Electricity



Green Hydrogen



Industrial Heat



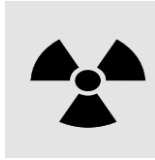
Dual Storage

Accelerator driven energy source

SOLVING PROBLEMS WITH HIGH IMPACT POTENTIAL

Problem-Risk-Need-
Analysis

RISK
Critical chain reaction
Transuranic nuclear
waste



RISK
Volatile renewables
Or: Pollution &
ocean acidification

No critical chain reaction

~0% risk of explosion

No meltdown risk

~0% plutonium and TI-208 production

~0% weapons-grade material

Secure energy supply for long period

~0% uncontrolled - transuranic nuclear waste

+ significant USP

~0% operational CO₂

Non-volatile energy

No large powerlines

Significant high-power density

High profitability with global impact

Low land-use requirements for systems

Affordable high temperature heat > hydrogen or electricity

+ Proof of concept

SMRX

Solution for:

AI
Data Centers
Remote Areas
Critical Infrastructure

SOLUTION – SMRX

2 GROUNDBREAKING INNOVATIONS FOR ENERGY STORAGE AND GENERATION

Emerald Horizon (deep tech scale up, founded in 2019) is pursuing a **10-year master plan** to bring both the storage system and the generator to TRL 9 and hand them over to **full-scale serial production**. Through **multi-level de-risking processes**, the company has kept the project on schedule and within defined parameters, systematically reducing technical, regulatory, and commercial risks. We are now in year 7, entering the decisive phase where the technologies are validated in operational environments and prepared for large-scale industrial deployment.

Dual Income
modular & scalable

NON-Nuclear

1. DUALstorePLUS

High Temperature Heat & Electricity
Energy Storage System



ADVANCED MOLTEN SALT STORAGE TECH

5-100 MWh modular hybrid - CAL store & E store

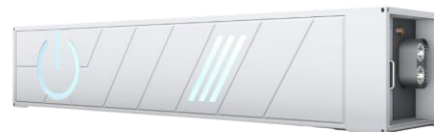
TRL 6.5 & 9 / 9

Highly efficient | Stable operation across extremely
high and low ambient temperatures

Phase 1 & Phase 2

2. ADES

Accelerator Driven Energy Source
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

Phase 2

DUALstorePLUS - Hybrid storage combining heat (TESS) & electricity (BESS). Stand-alone product today - integral building block for the Energy Generator (ADES) tomorrow (Phase 2).

NON-Criticality
Regulatory
Pathway
"Nuclear Adjacent"



Nuclear Energy Summit, Paris — March 10, 2026

On March 10, 2026, EU Commission President Ursula von der Leyen made the policy direction irreversible:

- €241 billion in nuclear investment required by 2050
- 17-53 GW of SMR capacity targeted across the EU
- Storage explicitly named as the essential backbone alongside nuclear
- First SMRs operational in Europe by the early 2030s

Emerald Horizon builds exactly both. Since 2019.

WHO WE ARE

Emerald Horizon AG

Deep-tech scale-up building the platform behind Europe's clean-power policy: modular energy storage today, SMR-class generation tomorrow.

 Graz, Austria · Wiener Börse listing 26 June 2026

 Founded 2019 · Year 7 of 10-year master plan

 51 specialists · Tier-1 partners across 3 continents

 Multi-level de-risking · on schedule, in parameters

Energy. Everywhere.

Two products. One platform. A policy tailwind.

COMPANY & AMBITION

A 10-year master plan to industrial-scale clean power

Founded 2019, Emerald Horizon develops both an advanced modular energy-storage system and an accelerator-driven thorium generator. The end goal: hand both products over to full-scale serial production with Tier-1 manufacturing partners.

WHAT WE BUILD

DUALstorePLUS today · SMRX tomorrow

DUALstorePLUS

Modular energy storage · 5-100 MWh

In-market 2026 · Path to TRL 9 · Serial production with VDL

SMRX

Storage + thorium generator · SMR-class system

Deploy 2029+ · Path to TRL 7 prototype · EU SMR policy aligned

HOW WE EXECUTE

Multi-level de-risking — technical, regulatory, commercial

Co-development with VDL Groep (EUR 4.06bn turnover, 13,500+ specialists, ASML/PALLAS-tier). U.S. regulatory pathway with Pillsbury LLP. EU pathway with Haskoning. Project on schedule, within defined parameters — entering year 7 of 10.

ON THE VIENNA STOCK EXCHANGE SINCE JUNE 26TH 2026

LISTING MILESTONE

Stock Ticker: **SMRX**

Company: **Emerald Horizon AG**

Group Structure: **3 subsidiaries and 2 equity participations**

Capital Markets Advisor: **Wiener Privatbank AG**

Corporate Brokerage: **Baader Bank AG**

Designated Sponsors / Market Makers: **Baader Bank AG / Hauck Aufhäuser Lampe Privatbank AG**

Legal Counsel: **Müller Partner Rechtsanwälte – Mag. Wilfling**

Research Coverage: **NuWays AG**



NuWays Initiation Published on 08 Jul 2026

NuWays initiated coverage with a BUY recommendation and a €1,300 price target

<https://www.nuways-ag.com/research/accelerating-the-future-of-clean-energy-initiate-with-buy>

 **NuWays**

RECOMMENDATION	
	BUY
TARGET	EUR 1,300.00
UPSIDE	+35.6%
PREVIOUS	EUR 1,300.00 BUY

€4.06bn

Annual Turnover

13,500+

Specialists

100+

Companies

22

Countries

€190M

R&D / year

VDL is already in nuclear energy: PALLAS reactor partner, Thorizon MSR co-developer, ASML supplier, CERN accelerator manufacturer, and EU Industrial Alliance on SMRs

THE FIVE WORLDS OF VDL

HIGHTECH

Semiconductor (ASML),
medical devices,
analytical instruments,
accelerators

MOBILITY

Electric buses (Van Hool),
EV components,
automotive systems

ENERGY

Gas turbines (Siemens),
battery packs, molten-
salt reactors (Thorizon)

INFRATECH

Industrial infrastructure,
logistics systems, civil
engineering equipment

FOODTECH

Food processing
automation, agri-food
technology, sustainable
food chains

Founded 1953 in Eindhoven. Van der Leegte family – third generation. Partners: ASML, Airbus, Siemens, CERN, Thorizon, PALLAS.



SMRX

2 GROUNDBREAKING PRODUCTS

Two products. Five building blocks.

DUALstorePLUS is in the market today. SMRX is the same platform plus the thorium generator — the full SMR-class system.

SMRX

PRODUCT 2

Small Modular Reactor — Generation + Storage

DUALstorePLUS platform + thorium generator.
The full SMR-class system.
EU SMR policy aligned.

TRL 4.5 / 9
4-5 components

DEPLOY 2029+

DUALstorePLUS

PRODUCT 1

Energy Storage System • Modular 5–100 MWh

Stand-alone product.
Bankable 20-year EaaS contracts.
In-market today (Raiffeisen-financed).

TRL 6.5 / 9
3 components

REVENUE 2026

BUILT FROM 5 COMPONENTS

MCU

Master Control Unit

AI orchestrates thermal & electrical flows. Grid integration.

USED IN

- ✓ DUALstorePLUS
- ✓ SMRX

E-Store

Battery Storage (BESS)

5 MWh LFP battery per module. ≥8,000 cycles. ~94% efficiency.

USED IN

- ✓ DUALstorePLUS
- ✓ SMRX

CALstore

Heat Storage (TESS)

5 MWh molten salt per module. 200–550°C. >20-year lifecycle.

USED IN

- ✓ DUALstorePLUS
- ✓ SMRX

ADES

Thorium based - Accelerator Driven - Molten Salt - Generator

25 MW(th) Subcritical. | 20 years no refuel. | No transuranic waste | No plutonium | No thallium-208

USED IN

- DUALstorePLUS
- ✓ SMRX

Converter

Output Converter

Heat → Power / Hydrogen / Process Heat. Client-specific.

USED IN

- DUALstorePLUS
- ✓ SMRX (opt.)

SMRX = DUALstorePLUS + ADES + Converter (optional)

DUALstorePLUS = MCU + E-Store + CAL-Store

Modular by design — DUALstorePLUS configurable 0–10 modules per Estore / CALstore. SMRX combines multiple ADES modules for higher capacity.

Dual Income
modular & scalable

1.
NON-Nuclear

2.
NON-Criticality
Regulatory
Pathway
“Nuclear Adjacent”

DUALstorePLUS



ENERGY STORAGE



Inputs:

Electricity
from

PV | Wind
Grid

or/and
HEAT



EaaS Proven
Raiffeisen Financed

ADES-Ready
Integral Component

Deployable
Worldwide

Hybrid storage combining heat (TESS) & electricity (BESS).

Stand-alone product today – integral building block for the Thorium Generator (ADES) tomorrow.
Configurable to client-need : 0-10 modules per TESS or BESS + 1 MCU – AI Control module.

ORDER NOW – DELIVERY SOON
Estore 4 months | CALstore 20 months



MCU – AI Control

Function	Orchestrates thermal & electrical flows
Grid	Peak shaving, frequency response
PLUS	Sells surplus to grid
Integration	P2H, H2H, H2P modes
Container	20- or 40-ft HC



CALstore (TESS)

Capacity	5 MWh (th) per unit
Power	500 kW(th) + 500 kW(el)
Efficiency	>95% h2h >98% p2h
Temp.	200–550°C (Solar salt)
Lifecycle	Minimal degrad. >20 yrs



Estore (BESS)

Capacity	~5 MWh (el) LFP
Cycles	≥ 8,000 @25°C
Efficiency	~94% roundtrip
Rating	IP55 / C4
Delivery	~4 months

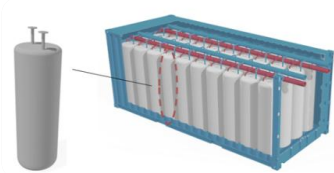
STRATEGIC DUAL ROLE

TODAY Stand-alone product. Store & optimize existing energy. Bankable 20-year EaaS contracts.

TOMORROW ADES building block. Thorium Generator plugs in → not just store but generate carbon-free energy.

- ✓ EaaS Proven – Raiffeisen Financed
- ✓ ADES-Ready – Integral Component
- ✓ Deployable Worldwide

1 Cell -> 1 Container -> Serial Production @ VDL



5 MWh molten salt heat storage – stand-alone & integral building block for ADES.

Stand-alone product + Part of DUALstorePLUS + Integral to ADES → With ADES: not just storage – carbon-free energy generation



Extreme Temperature Range: 200–550°C

Solar salt ($\text{KNO}_3/\text{NaNO}_3$). Reliable in extreme ambient conditions.



High Energy Density – 5 MWh

150–200 kWh/m³ (vs. water: 60–80 kWh/m³). Compact footprint.



Entirely Water-Free & Pressure-Free

Zero vapor pressure or detonation risk. No steam, no overpressure.



3 Operating Modes

Power2Heat | Heat2Heat (waste heat) | Heat2Power (re-electrification)



Adaptable & Mass-Production Ready

Salt mix & capacity configurable. Serial production via VDL Groep.



Minimal Degradation Over Lifecycle

Near-constant capacity over >20 years. Unlimited cycling. Low maintenance.

Target: Chemical | Pharma | Steel & Metal | Paper | Food & Feed | Cement

PROTOTYPE CELL

READY & VALIDATED

Government-funded (FFG) – Ongoing audits



KEY SPECIFICATIONS

Capacity	5 MWh (th) per unit
Charge / Discharge	500 kW (th) 500 kW (el)
Efficiency	>95% h2h >98% p2h
Temperature	200 – 550°C (Solar salt)
Cycling	Unlimited Minimal degradation
Lifetime	> 20 years
TRL	6+ → serial production with VDL

ENERGY DENSITY COMPARISON

Medium	Temp.	Density	Pressure
Water	20–100°C	60–80 kWh/m ³	High!
Molten Salt	200–550°C	150–200 kWh/m ³	None!

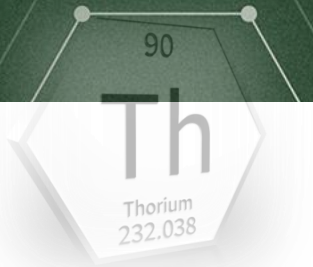


Order now
Deployable
worldwide from 2026
20-year EaaS contracts
Serial production via
VDL Groep



SMRX

(ADES & DUALstorePLUS)



and



ENERGY PRODUCTION INCL. STORAGE



WHAT IS ADES?

ACCELERATOR DRIVEN ENERGY SOURCE

The Concept: Thorium + Particle Accelerator + X = CO₂ - Free Energy

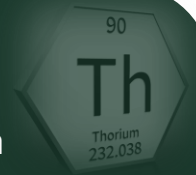
Pioneer: Carlo Rubbia

Nobel Prize in Physics 1984, CERN Director

Creator of the Energy Amplifier concept - the scientific foundation of ADES

Why Thorium?

- 3x more abundant than uranium
- 300-400x more abundant than U-235
- Byproduct of the mining industry
- ~80% converted into energy
- ~0% transuranic waste



4 Key Factors



Mini-Modular

Compact, 8m accelerator



100% Thorium

No plutonium or uranium 235/238



ON/OFF Switch

Controllable neutron injector



Subcritical

No chain reaction risk

Energy Density Comparison

Allows a runtime of 20 years without refueling

2,800,000 barrels of oil

= 0.34 barrels of thorium

Both deliver 4.4 TWh of energy



FUSION of 5 Core Components



Injector (Accelerator)

Compact 8m - generates neutrons to initiate and control the thorium reaction



X-Amplifier

Amplifies the neutron flux from the accelerator



Subcritical Thorium Molten Salt Loop

Thorium in molten salt circulates as fuel and coolant simultaneously



HTHX (Heat Exchanger)

Transfers high-temperature heat to the energy conversion system



Containment & Shielding

Isolation and shielding ensures safe operation

Prototype Status

All components already exist
VDL as Tier-1 partner
Co-development to TRL 9
Serial product est. 2029

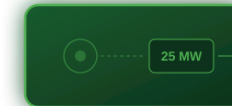
1 ADES = 25 MW

(thermal) · ~10 MW electric · 20-year lifetime

Scalable: combine multiple ADES modules for higher demand

Converter Modules (client-specific)

ADES MODULE



Accelerator Driven Energy Source
25 MW(th) · 10 MW(el) · Container-sized · 20 years



Heat to Power Electricity



Heat to Hydrogen H₂ production



Heat to Heat Process heat



AI-Powered | Plug-and-Play | Minimal Maintenance

AI learns load profiles and adapts energy production in real time
Deliverable and installable worldwide | Low OPEX | 20 years without refueling
Ideal for global distribution & high scalability

ADES PROTOTYPE SETUP

CO DEVELOPMENT -> SERIAL PRODUCT TRL 9



TIER-1 execution
partner

Co-Development
to achieve TRL 9

Manufacturing

Supply Chain

CONTAINMENT:
isolation, shielding

INJECTOR
(Accelerator)

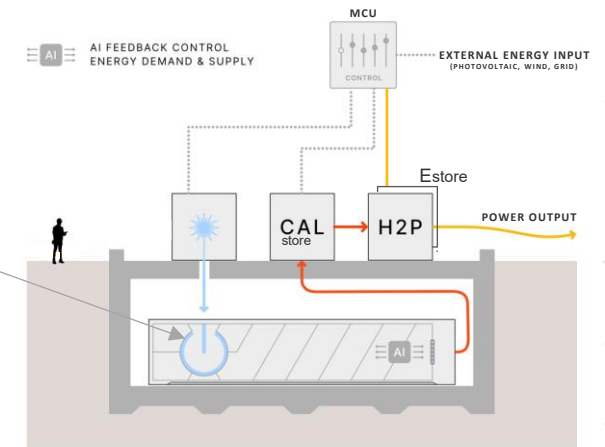
HTHX

TRANSFER

PUMP



THORIUM - MOLTEN SALT - LOOP



Reality check:
All prototype
components
already exist



Censored for security reasons

MULTIPLE USE CASES

BUILT FOR SCALABLE GROWTH & SUPPORTS THE DCF MODEL

1 ADES
= 10 MW(el)

for 10,000
households

20 years
no refueling



Hydrogen Production

High-temp heat for efficient H₂ thermolysis



AI & Data Centers

On-site power for AI.
No grid dependency



Critical Infrastructure & Military

Self-sustaining energy
for vital facilities



Enhances Wind & Solar

Stable baseload for
intermittent renewables



Upgrade Existing Power Plants

Replace oil/gas/coal/conventional nuclear
Enhance with modules



Energy-Intensive Industries

Direct heat, H₂, electricity
for steel, chemical, cement



Carbon-Free Real Estate

1 ADES = 10,000 homes.
Net-zero districts



Grid Integration & Stability

Redundancy and support
for existing District Heat &
Power Grids



Emerging Markets & Remote Areas

Deploy anywhere.
No grid needed



E-Mobility Charging

Universal EV charging
at any location

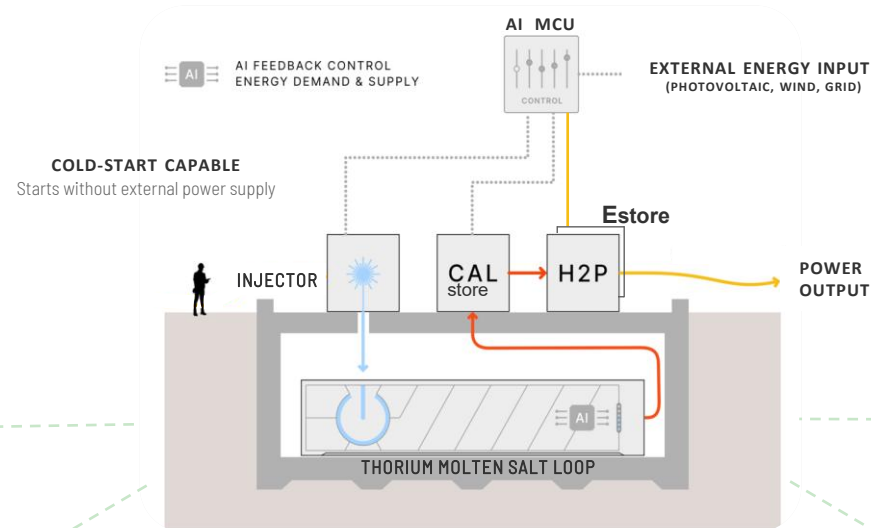


Ship Propulsion & Desalination

Maritime energy &
island water supply



Drying process in
the food industry



ADES

ACCELERATOR DRIVEN ENERGY SOURCE – FACT SUMMARY

The scalable and risk-optimized solution for CO₂-free energy



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

Output:
High temperature
heat

To generate:
Heat
Electricity
Hydrogen

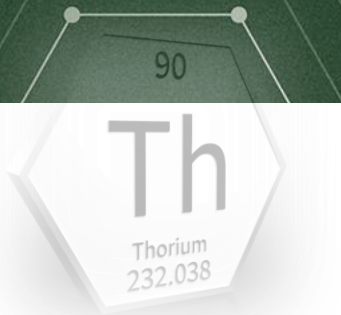




ACCELERATOR ENERGY – BUILDING THE FUTURE OF CLEAN POWER

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APPENDIX

COMPANY – TEAM – PARTNERS – DE-RISKING – METRICS – CREDIBILITY

51 BRAINS BEHIND EMERALD HORIZON

THE INNOVATION & TIER-1 PARTNERS WORLDWIDE



EXECUTIVE TEAM

Leaders with experience at the World Bank, IMF, ECB, Austrian National Bank, and former Austrian Federal Minister.

CEO Florian Wagner *Capital Markets & IPO*

Founder of Emerald Horizon;
Multi-award-winning international
fund manager. 20+ years capital
markets experience across EU & US.
Leads IPO preparation and exit strategy for
investors

Prof. Dr. Robert Holzmann *VP International Relations*

fmr. Austrian National Bank Governor
& ECB Governing Council member;
World Bank Sector Director; IMF; OECD.
Key for EaaS credits & EU Green Bonds
(EU Taxonomy / Sustainable Finance
Regulation aligned)

Ing. Norbert Hofer, MBA *VP Strategic Communications*

fmr. Federal Minister for Transport,
Innovation & Technology; served as Government
Coordinator; chaired transport-related work during
Austria's 2018 EU Council Presidency; contributed to
Austria's #mission2030 climate & energy strategy
Leading the infrastructure deployment of
DUALstorePLUS projects

DI Dr. Mario J. Müller *VP Accelerator Technology*

Ex-CERN physicist.
Central for ADES accelerator development.
Bridges medical accelerator (AD-BNCT)
and energy accelerator IP.
Deep expertise in particle physics and neutron
transport interactions

MMag. Philipp Pölzl *VP Operations*

Co-Founder of Emerald Horizon AG;
dual degrees in Business Administration & Law;
University of St. Gallen (HSG) & Texas Tech University
(USA);
Overseeing corporate operations, compliance & R&D
alignment – ensuring operational integrity during rapid
growth phases.



SCIENTIFIC TEAM

Experts in nuclear physics, accelerator technology (ex-CERN), mechanical engineering, electrical engineering, molten salt chemistry, and industrial manufacturing.

Nuclear Physics

Accelerator Tech

ex-CERN

Mech. Engineering

Electrical Engineering

Molten Salt

Industrial Manufacturing

AI



TIER-1 EXECUTION PARTNERS

For regulatory affairs, co-development, manufacturing, supply chain, and financial support.

VDL Groep

Co-Development &
Manufacturing
€4.06bn · 13,500+

Pillsbury LLP

U.S. Nuclear Regulatory
Classification
Tier-1 · Paid-in

Haskoning

EU Regulatory
Pathway
Tech validation

TU Graz

Scientific
Partnership
Academic R&D

PwC

Financial
Advisory
Audit & structure

FFG

Austrian Research
Funding
Govt. grants



Emerald LaboraTHorium

Full R&D facility: Assembly & Production, ADES Prototyping, Salt Preparation, MECH/CHEM/LASER/NUC/HOT Labs, ADES Workshop.



Note: Emerald Horizon AG is strictly non-political. Board members and advisors represent diverse professional backgrounds across the full political spectrum. Their involvement is exclusively based on domain expertise, not political affiliation.



CO-DEVELOPMENT & MANUFACTURING CONFIRMED

5-month due diligence | 30 Apr 2025

What VDL delivers for Emerald Horizon:



CALstore → Serial Production

TRL 6 prototype transferred to industrial manufacturing at VDL. Assembly, integration, QA.



ADES Co-Development

Joint development of Energy Generator modules. Precision engineering & production scale-up.



Supply Chain & Logistics

Global procurement infrastructure. No proprietary factory needed (asset-light model).



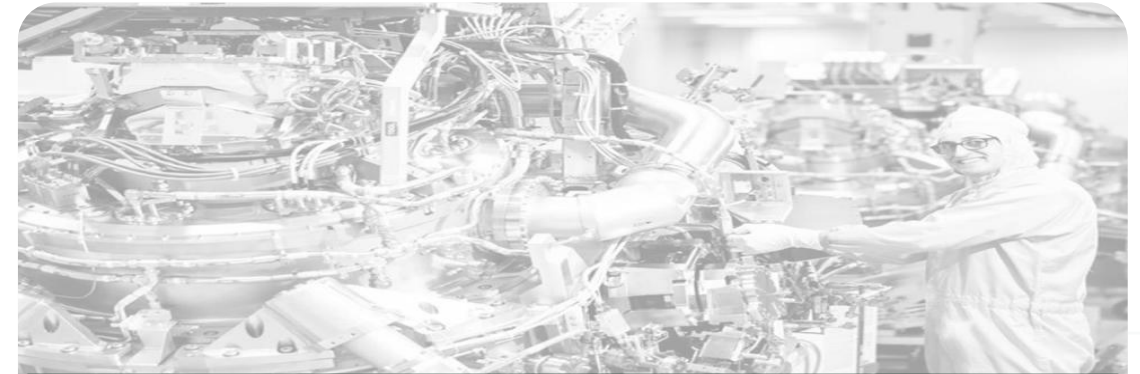
Certification & QA

Industrial quality standards, certification & compliance for global deployment.



INVESTOR DE-RISKING

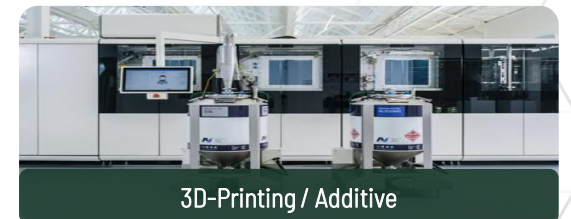
No factory CAPEX; proven Tier-1 partner; replication risk, not engineering risk; reduced timing risk; reduced failure risk; reduced scalability risk



VDL: 13.500 people - Precision engineering, system integration & serial manufacturing at scale



ASML / nm-Lithography



3D-Printing / Additive



Aerospace / Airbus



Accelerators / CERN

Manufacturing de-risked: Asset-light co-development | No mega-plant risk | Modular production confines capital-at-risk | Haskoning: regulatory strategy

VDL Groep: ASML supplier | PALLAS reactor partner | Thorizon MSR co-developer | European Industrial Alliance on SMR member

VDL will build the first ADES factory at its own site. For global rollout, identical copies will later be installed at three additional locations.

How to get
Gigawatt
power

without building
a Gigawatt
plant

3 scaling levels
from proven
accelerator
to grid-scale

The accelerator already exists and works. The question is only: how do we scale it for energy of 1 GW?



LEVEL 1 – THE X-CORE

The Neutron Source and Amplifier System

The central functional unit of ADES is a proprietary neutron driver and amplification system (the X-core), integrating medical-grade particle accelerators and high-intensity laser platforms into a unified architecture. The X-core generates and controls the external neutron source required to sustain subcritical fission processes in the molten salt medium. Its operation defines the system’s power output, dynamic behavior, and intrinsic safety characteristics. The underlying physics and system integration constitute the core intellectual property of ADES.



LEVEL 2 – ADES INNOVATION

Molten Salt Loop = 25 MW(th) / 10 MW(el)

Key breakthrough: loop geometry enables continuous operation.

Instead of pulsed impulse-stop, the thorium-molten salt circulates in a closed loop through the neutron field. Continuous circulation through reaction zone allows subcritical neutron flux amplification up to 25 MW(th). Subcritical: switch off accelerator → reaction stops instantly. No meltdown risk. No chain reaction. Single container-sized module. 20 years without refueling.



LEVEL 3 – GRID SCALE

100 Containers = 1,000 MW(el) = 1 GW

Identical modules deployed in parallel – at the location where energy is needed.

No large-scale grid infrastructure required – distributed generation eliminates transmission losses and costs. Thorium energy density: 1 load ≈ energy of a supertanker of oil (~4.4TWh). Runs 20 years, no refueling. Extreme redundancy: if 1 of 100 modules fails, only 1% capacity lost (vs. conventional: 100% blackout). Gradual ramp-up: deploy 10, then 50, then 100. Capital scales with demand, not upfront.



WHY THIS WORKS



Proven Core Technology

The accelerator is TRL 9 in medical tech (AD-BNCT). We don’t invent the accelerator – we repurpose it.



20 Years, No Refueling

Thorium’s energy density: 1 kg Th ≈ 3.5M kg coal. A single ADES load replaces an entire supertanker of oil – for 20 years.



No Grid, No Waste

Deploy at point of use. ~0% transuranic waste: Pu, U-235, TI-208. Subcritical = instant OFF switch.



2.8M Barrels of Oil = 1.2M Tons of CO₂

Thermal power averages ~270 g CO₂/kWh. ADES delivers <1 g/kWh including embodied carbon from materials and occasional grid draw.

CONVENTIONAL vs. ADES

	Conventional 1 GW Plant	ADES 100 Modules
Build time	10-20 years	Gradual ramp
CAPEX risk	\$10-35 bn all upfront	\$25M / unit scalable
Failure impact	100% blackout	1% loss
Refueling	Every 1-2 year	Never (20 years)
Grid needed	Massive	None

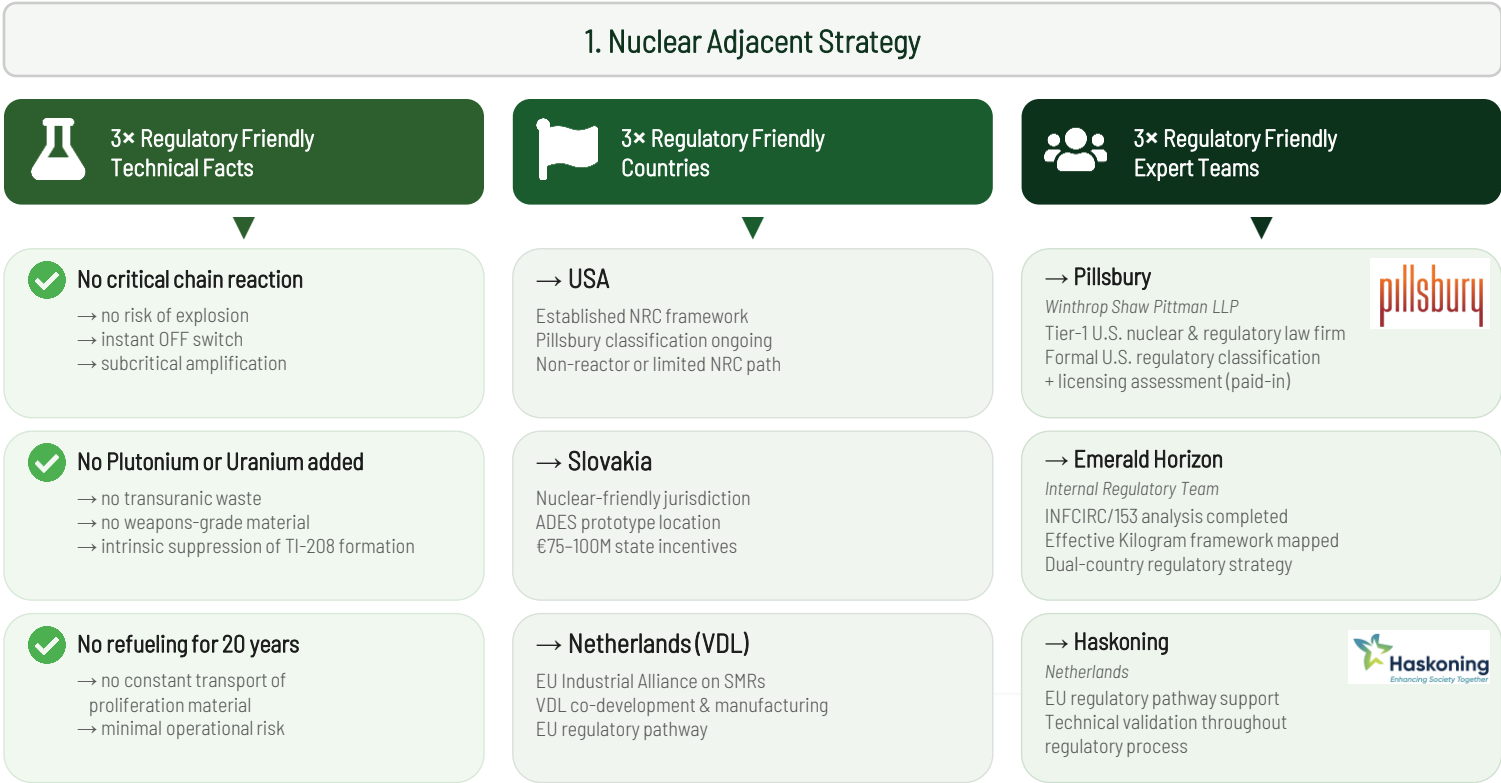
REGULATORY DE-RISKING
NON-CRITICAL PATHWAY DUAL IDEAL

Significant
risk
reduction

Not like normal
Nuclear
Gen IV
SMRs

3 × 3 × 3
= built-in redundancy

INFCIRC/153 §104: Thorium
= 0.00005 ekg/kg
20,000× less safeguards weight
than Plutonium



2. NON-Nuclear

DUALstorePLUS

Conventional NON-Nuclear
storage product pathway

- ✓ Zero nuclear regulatory friction
- ✓ Standard industrial permitting
- ✓ Ready for order Q3 2026
- ✓ Bankable 20-year EaaS contracts
- ✓ Already validated EaaS cycle
(Raiffeisen Bank financing)

ADES (Accelerator Driven Energy Source)

Where ADES sits on the regulatory spectrum



DUALstorePLUS

Note: Emerald Horizon has engaged Pillsbury Winthrop Shaw Pittman LLP, a Tier-1 U.S. nuclear and regulatory law firm, to conduct the formal U.S. regulatory classification and licensing assessment of its accelerator-driven, subcritical energy system. The objective is to determine whether the technology proceeds under (i) a non-reactor, accelerator/radiation licensing pathway or (ii) a limited NRC advanced-nuclear framework, establishing a clear, bankable U.S. regulatory route.

IAEA INFCIRC/153 (Corrected), June 1972. Regulatory partners: Pillsbury (USA), Haskoning (NL), Emerald Horizon internal regulatory analysis.

FINANCIAL DE-RISKING

WHY WE DON'T NEED BILLIONS

Conventional
Plant Risk
Eliminated

€6,900M

1 GW Plant → Container-Size Modules

No large power plant construction risk. Modular container units eliminate megaproject cost overruns.

Grid
Infrastructure
Avoided

€3,086M

Distributed Grid → No Grid Infrastructure

No high-voltage transmission lines needed. Plug-and-play at point of use.

Factory
Costs
Eliminated

~€1,750M

No Own Factory → VDL Co-Development

VDL Groep's existing Tier-1 manufacturing infrastructure replaces need for greenfield factory.

IP + Grants
Leverage

€160–185M

IP License + Slovakia Grants

Accelerator IP via royalty license (~\$85M saved) + Slovakia non-dilutive cash relief (~\$75–100M).

Prior
Contributions

Absorbed

Prior Equity + Know-How + Grants

Founders, early investors, FFG grants, and know-how contributions already paid in.

WHAT'S LEFT

EaaS
bankable
Green Bonds
to finance serial
production

WHY NOT \$10+ BILLION?

Modular, not Mega

Container-sized units replace billion-dollar power plants. Each module = limited capital at risk.

Asset-Light Manufacturing

VDL Groep provides factory, supply chain, QA. No greenfield CAPEX for Emerald Horizon.

IP Leverage

Accelerator IP licensed via royalty – substitutes ~\$85M in independent R&D.

State Co-Funding

Slovakia: €75–100M non-dilutive (50–60% cash grant). FFG-funded prototype.

Sequential De-Risking

DUALstorePLUS generates cashflow first (2026), funding ADES ramp (2029+).

No Further Equity to TRL 9

Blended stack: equity + grants + debt. This raise completes the funding.

All figures illustrative. Based on Emerald Horizon internal analysis and comparable nuclear/energy infrastructure benchmarks.

Readiness scorecards (current)

Milestone de-risking: readiness scorecards translate technical, regulatory, and commercial progress into valuation step-ups.

Company readiness (non-technical)

1935 / 2700

72%

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

DUALstorePLUS readiness (Estore and CALstore)

1800 / 2700

67%

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

ADES readiness (deep-tech)

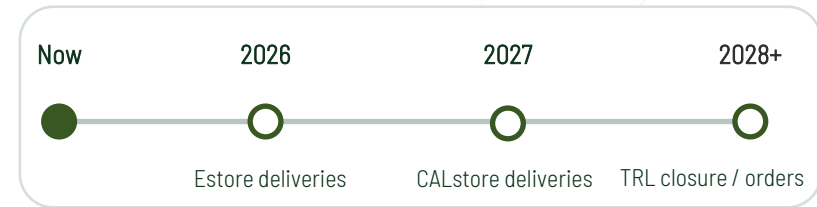
1590 / 2700

59%

- 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.

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

COMPANY READINESS
NON-TECHNICAL SCORECARD

3
Under-writing
areas

27 checks

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

- 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)
- 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

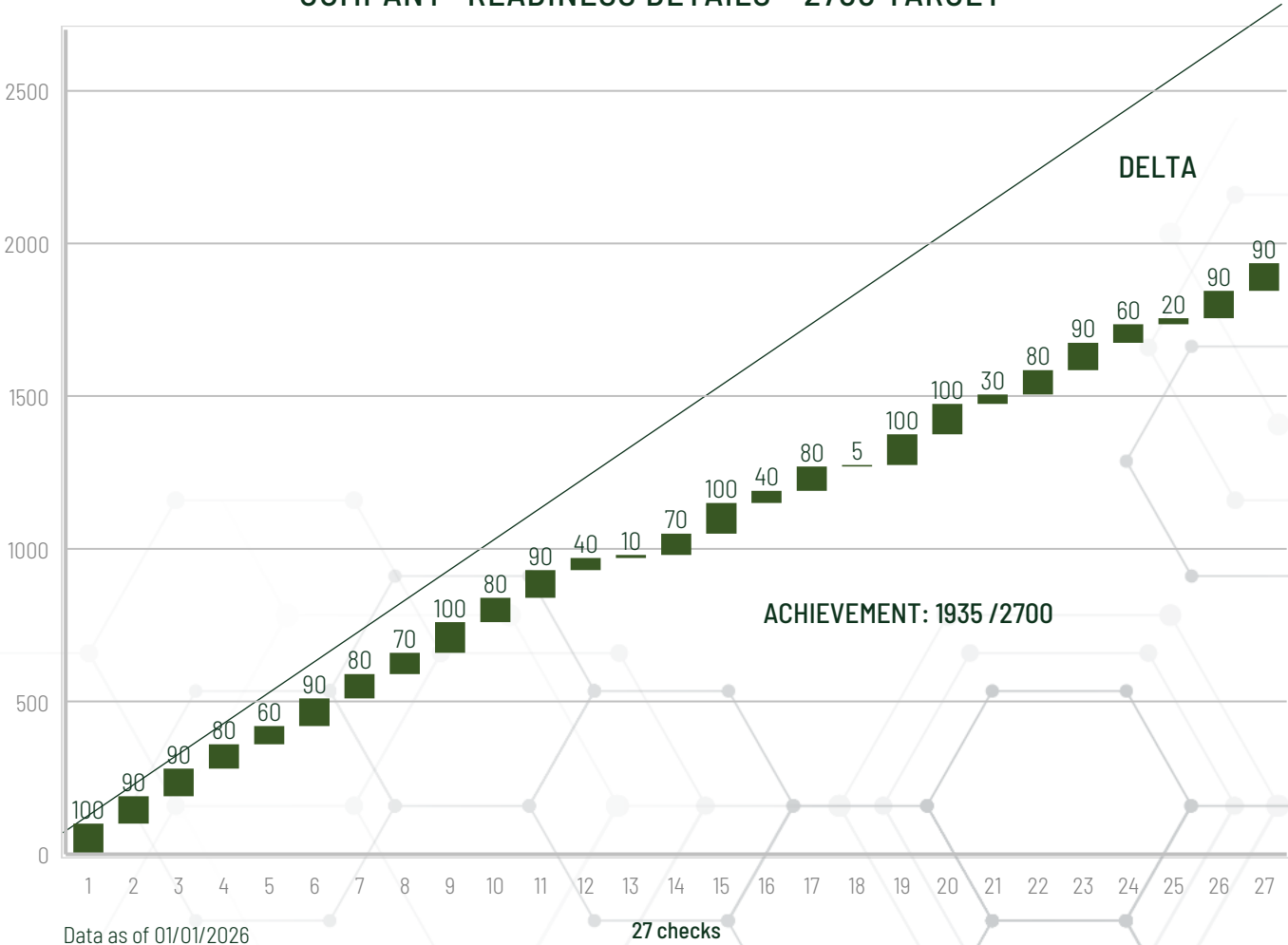
Reg DUALstorePLUS - compliance map (low reg)
- 25

Reg readiness (partners Pillsbury, Haskoning)
- 26

Customer value (payback/savings)
- 27

Unit economics + predictable cost (EaaS)

COMPANY- READINESS DETAILS - 2700 TARGET



DUALstorePLUS

TECHNICAL READINESS – MILESTONES ACHIEVED – DELTA REMAINING PART TO TRL 9

- 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 failsafe validated
- 25 Multimarket optimization priorities
- 26 Fleetgrade OTA hardening
- 27 EnergyOS governance SLA

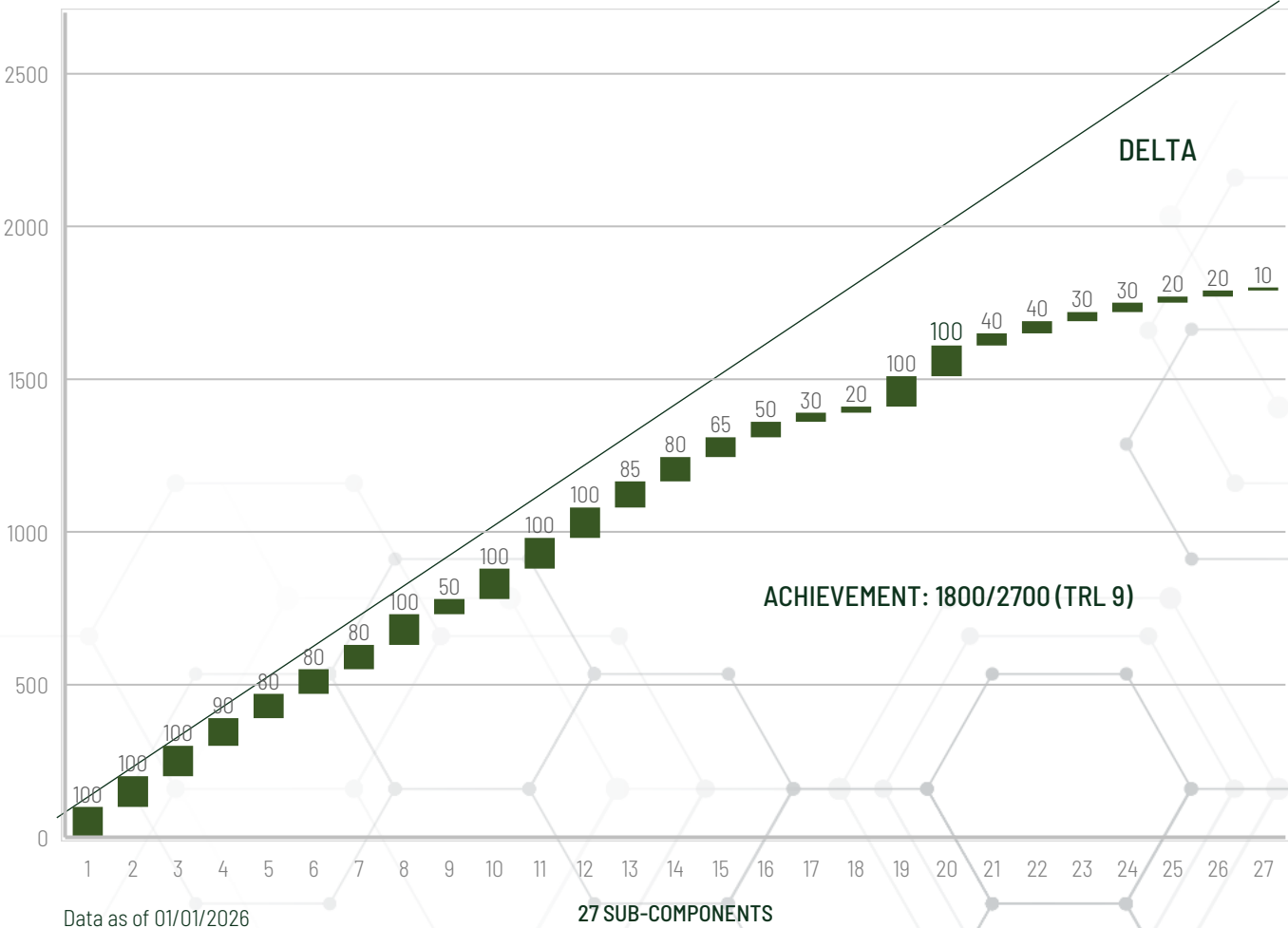
3 main components

27 sub-components



For further details see
Investment Proposal

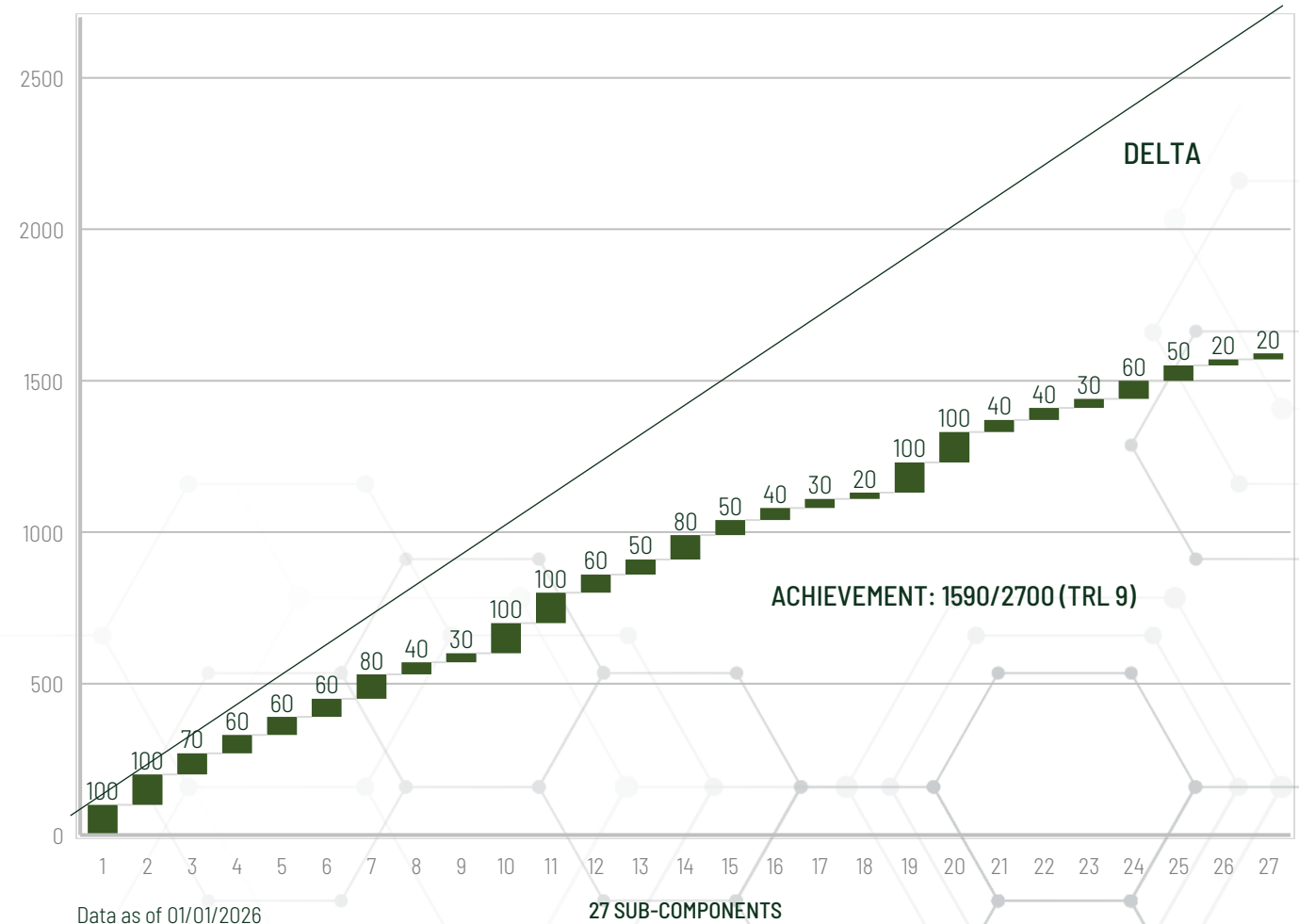
DUALstorePLUS - READINESS DETAILS - 2700 TARGET



- 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 - READINESS DETAILS - 2700 TARGET



3 main components

27 sub-components

DELTA

→ Use of funds to get to TRL 9

→ See Investment Proposal

ADES PHYSICS PROOF CHAIN

EVERY COMPONENT IS VALIDATED

5 Components 5 Validations

✓ CERN
✓ IAEA
✓ ORNL
✓ MYRRHA
✓ PSI
✓ SCK CEN
✓ Los Alamos
✓ DOE
✓ DLR
✓ VDL Groep

The physics underlying ADES is validated. The challenge is system integration and scaling – that's what VDL Groep delivers.

1	Neutron Production via Accelerator High-energy proton linacs generate neutrons for subcritical nuclear systems. Proven in spallation sources worldwide.	✓ CERN: Accelerator R&D for European ADS Demonstrator ✓ CERN n_TOF: Neutron Time-of-Flight Facility ✓ PSI SINQ: Swiss Spallation Neutron Source	✓ PROVEN
2	Thorium → U-233 Transmutation Th-232 converts to fissile U-233 via neutron capture and beta decay. 60 – 90% FIMA is achievable.	✓ IAEA: Thorium Fuel Cycle (official program) ✓ Oak Ridge Nat. Lab (ORNL): Molten Salt Reactor Experiment	✓ PROVEN
3	Heat Generation (Subcritical ADS) Controlled thermal energy through subcritical fission sustained by external neutron source. Only subcritical reactions.	✓ MYRRHA (Belgium, SCK CEN): ADS demonstrator ✓ GUINEVERE: Subcritical ADS experimental facility ✓ Forschungszentrum Jülich: MYRRHA collaboration	✓ PROVEN
4	Heat Transfer & Energy Conversion Thermal energy transferred via HTHX, converted to electricity (steam Rankine or sCO ₂ Brayton cycles).	✓ Los Alamos Nat. Lab: ADS Heat Transfer Studies ✓ US DOE: Advanced Reactor Technologies ✓ DLR (German Aerospace): Energy Research Division	✓ PROVEN
5	System Integration & Industrialization Scaling from validated components to serial container-sized modules. Precision manufacturing at industrial scale.	✓ VDL Groep: ASML/PALLAS/Thorizon supplier ✓ VDL + Research Center Petten: molten salt tech ✓ VDL: EU Industrial Alliance on SMRs member	✓ VDL PARTNER

✓ **Every ADES component has independent physics validation.** The remaining challenge is integration – delivered by VDL Groep (Tier-1 partner).
Sources: CERN, IAEA, Oak Ridge National Laboratory, SCK CEN/MYRRHA, PSI, Los Alamos National Laboratory, US DOE, DLR, VDL Groep public disclosures. Full reference list: Emerald Horizon Validation Document.

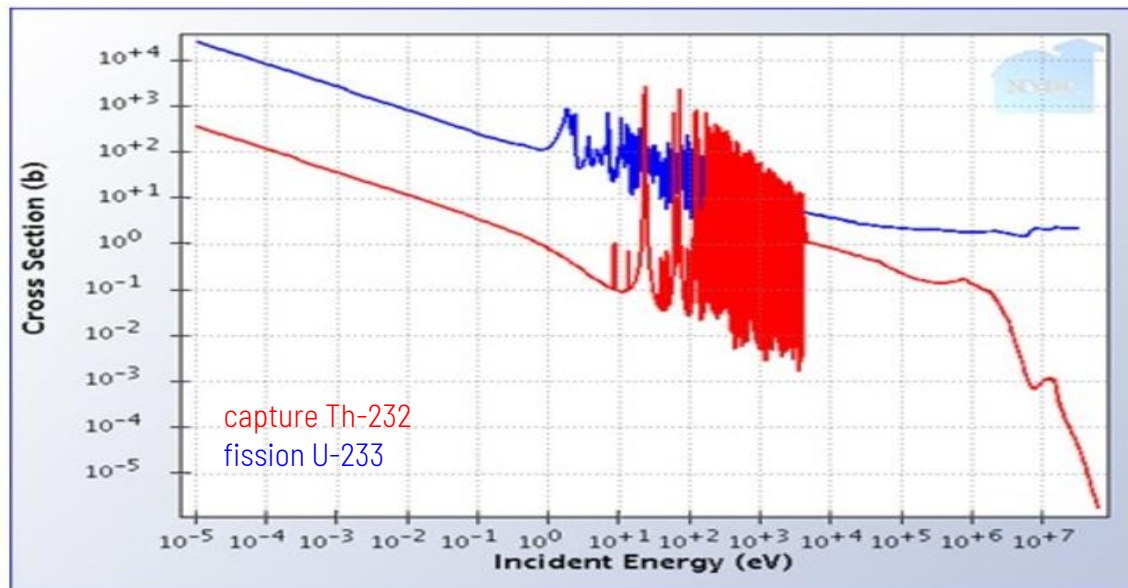
Physics-Based
Validation

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

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

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

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



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 $\rightarrow$ 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 $\rightarrow$ Pa-233 (half-life = 22.3 min)
λ_{Pa233}	Decay constant of Pa-233 $\rightarrow$ 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