

TERRESTRIAL ENERGY

Delivering carbon-free thermal and electrical energy

NOVEMBER 2025

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Investment Summary



Terrestrial Energy is a developer of small modular nuclear power plants using proprietary Integral Molten Salt Reactor (IMSR) technology, a Generation IV reactor technology. The IMSR delivers best-in-class capital efficiency and low-cost nuclear energy supply. Its pragmatic use of readily available Standard-Assay Low Enriched Uranium (“SALEU”) in its fuel, modular design for fast construction, and regulatory leadership position it for rapid deployment.



IMSR Plants supply clean firm thermal energy and electricity for direct use. Technology, nuclear fuel, and plant design choices deliver exceptional economic performance and time-to-market with the highest standards of safety, efficiency, and sustainability. IMSR Plant’s high-temperature thermal energy supply delivers a ~50% increase in steam turbine efficiency for electricity generation versus nuclear plants using legacy nuclear technology.



Terrestrial Energy’s fast-to-market and low-capex business model is designed to capture these advantages in a \$1.4 trillion serviceable addressable market (SAM) with long-term revenue streams from component, fuel, and service supply over the 50+ year operating life cycle of each IMSR Plant starting at the site development phase of plant deployment.



IMSR benefits from Terrestrial Energy’s 10+ years of design development informed by supply chain and regulatory engagements. Terrestrial Energy’s management team has recorded an impressive track record of milestones and regulatory advances with the U.S. NRC and Canadian CNSC.

Terrestrial Energy at-a-Glance



Developer of the small and modular Integral Molten Salt Reactor plant (“IMSR Plant”) that uses Gen IV nuclear technology; listed under “IMSR” on Nasdaq

As a result of specific fission technology and intentional plant design choices, the IMSR Plant offers high-temperature, carbon-free heat and/or electricity supply with sector-competitive nuclear economics and time-to-market

1. Company internal projection.

\$1.4 T
Current SAM¹

Directly addresses a \$1.4 trillion SAM for industrial process heat and electricity in OECD markets and is expected to grow 35% to \$1.9 T by 2050¹

65 years

National laboratory proven and demonstrated technology

The Molten Salt Reactor research program started at Oak Ridge National Laboratory (ORNL) in the 1950s

>12 years
Corporate history

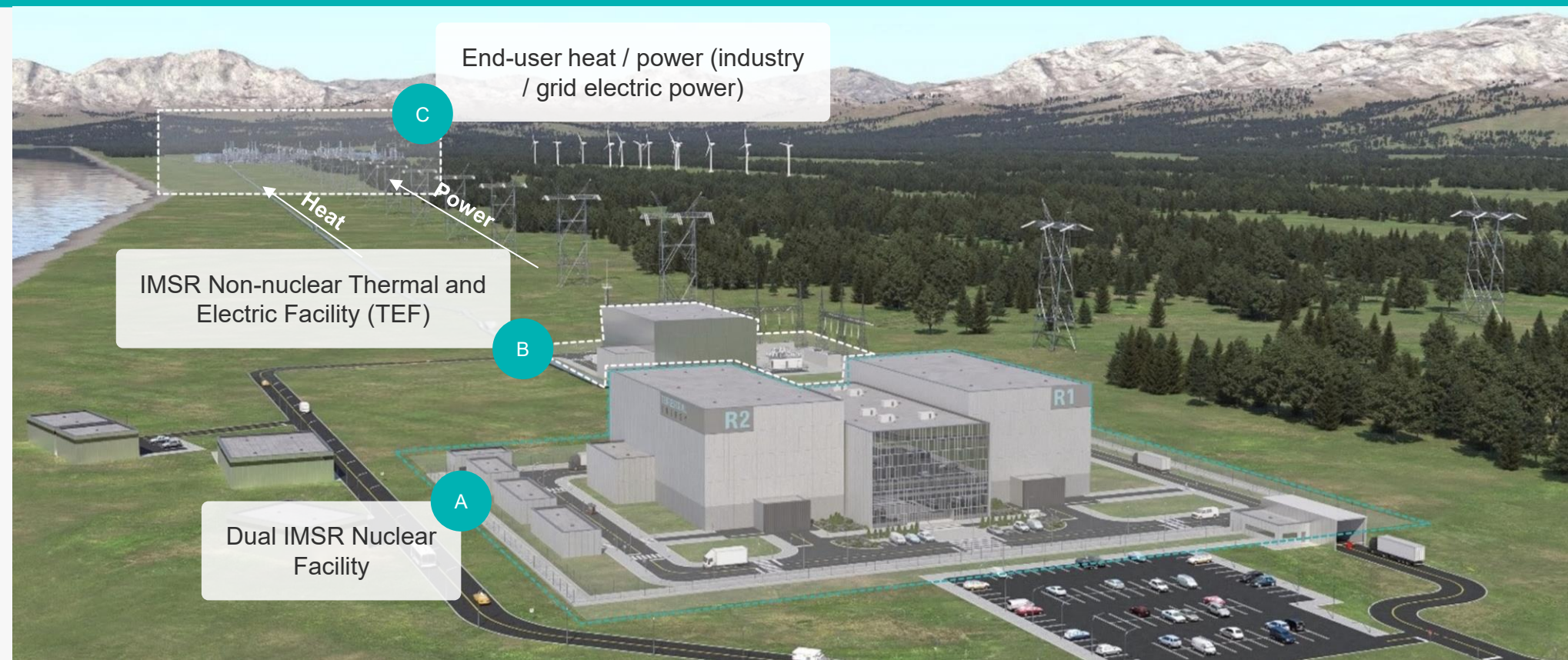
Corporate history built with an experienced management team with many decades of experience

IMSR Plant is Designed to Deliver Co-located, Customized Energy Solutions to Industry

Separation of nuclear from thermal and electrical systems allows:

- Standardized reactor design with end-user flexibility and customized co-generation of thermal and electric supply
- Easier pathway for coal plant conversion
- Ability to be hybridized with other energy systems, such as natural gas and renewables

Note: Example is for a dual reactor IMSR Plant. Scaling up is possible.
Source: Company internal view



A

Standardized twin IMSR Nuclear Facility

- Subject to nuclear regulation
- Standardized, simplified design reduces costs
- 822 MW (net) thermal energy production for 585°C supply

B

Customized non-nuclear Thermal and Electric Facility (TEF)

- Converts thermal energy from two operating IMSRs to 585°C 822 MW (net) thermal or 390 MW (net) electric power for commercial supply – or any heat/electric power mix in between
- Steam turbines operate at ~50% greater efficiency than in a plant employing legacy nuclear technology
- Separate Nuclear Facility & non-nuclear Thermal and Electric Facility (TEF) enables the potential to integrate natural gas as a bridge to rapid commercial operation and use as back-up during nuclear systems' operation

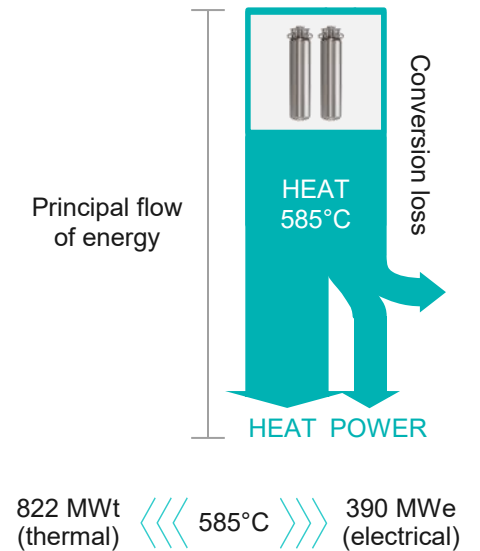
C

Near and co-located generation

- Chemical and petrochemical plant
- Datacenters
- Other industrials requiring clean heat & power

Prospective off-takers

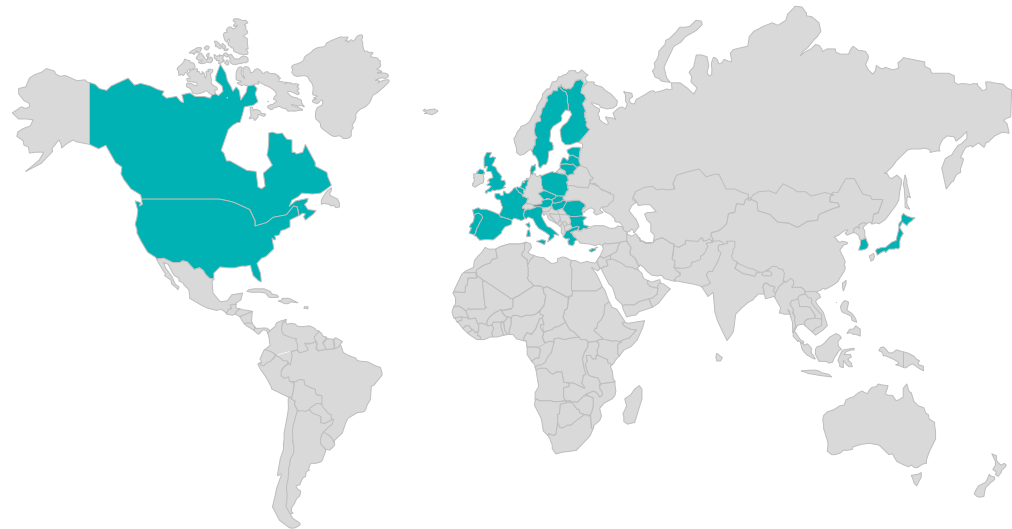
- Electric grid, including municipalities



IMSR Plant Innovation Reaches New Markets and Sectors

The IMSR Plant has the operational capability to supply three key, large market verticals

Many markets showing clear policy support for nuclear energy



1

Industrial heat and power

Today, thermal energy (heat) for industrial processes is produced almost entirely from combustion of oil, coal, and natural gas – forming a large replacement market to be filled with IMSR Plants.

2

Data center power supply

Increasing demand for computing driven by the AI industry that requires near and co-located clean energy. IMSR Plants can be installed at near-location sites to supply electricity to data centers at giga-watt scale with baseload reliability, high-efficiency, and zero emissions.

3

Coal plant replacements

IMSR Plant at 390 MWe is suitably sized for industrial applications, data centers, and grid applications, including replacing aging fossil fuel plants. IMSR Plant is land-efficient – requiring a fraction of the physical footprint of legacy plants – which further increases siting flexibility.

The IMSR Plant is small and modular for fast construction and ease of deployment. It is ideally suited for deployment close to point of demand, whether a large industrial plant requiring heat and/or power, a data center, or for grid generation at points of congestion, generating clean firm electric power with high efficiency while minimizing transmission access obstacles.

Terrestrial Energy's IMSR Plant Addresses the Weaknesses and Limitations of Legacy Nuclear Technology While Delivering the Benefits of Nuclear Energy

- Avoids HALEU (15-20)¹ fuel supply chain risk; HALEU (15-20) supply unlikely to be commercially available to support early 2030s fleet deployment, severely challenging the commercial timeframes for the other Gen IV technologies that rely on it
- Development of HALEU (15-20) fuel supply chain will require significant government support due to an uncertain market demand signal
- By contrast SALEU is readily available today and producers are currently expanding production to meet growing demand²



Terrestrial Energy IMSR Gen IV Advanced Modular Reactor

- ✓ High capital efficiency due to:
 - High-temperature thermal energy supply for high efficiency turbine operation
 - Low-pressure operation easing design requirements, lowering manufacturing costs
 - High inherent safety
 - Modular design for fast construction
 - Long and cost-effective fuel cycle
- ✓ Wide range of essential industrial uses requiring high-temperature heat & electric power
 - On-grid electricity generation
 - Co-located industrial cogeneration

Capital efficient, smaller footprint for siting flexibility, modular design for fast construction, and financeable. High commercial value delivered quickly.



Legacy Nuclear Technology LWR Gen II, III and III+ (including SMRs)

- ⊗ Low capital efficiency due to:
 - Low-temperature thermal energy supply for low efficiency turbine operation
 - High pressure operation
 - High active and/or passive safety
 - Conventional construction methods
- ⊗ Limited use case, focused primarily on electricity generation
 - Very large unit plant configuration
 - Centralized grid generation

Uneconomic, capital-intensive, challenging to site, and difficult to finance without government support.

1. HALEU is 10-20% enriched Uranium-235, but the product relevant for comparison (i.e., Gen IV fuel) is 15-20% enrichment, i.e., HALEU (15-20)

2. "Urenco doubles expansion plans for uranium enrichment in the Netherlands. *World Nuclear News*, 20 Oct. 2025, <https://www.world-nuclear-news.org/articles/urencos-doubles-expansion-plans-for-uranium-enrichment-in-the-Netherlands>.

IMSR Uses Readily-Available and Inexpensive Standard-Assay Low-Enriched Uranium (SALEU) in its Fuel

Standard-Assay Low-Enriched Uranium SALEU		High-Assay Low-Enriched Uranium HALEU (15-20)
<5% U-235	Uranium-235 enrichment level	15-20% U-235
\$2,700 / kgU ¹	Cost	\$32,600 / kgU ¹
Terrestrial Energy IMSR (Gen IV), Gen II/III/III+ (light-water reactors)	Typical use case	Most other Gen IV reactors today require HALEU at 15-20% U-235
Known and straightforward (both production and transportation)	Regulatory requirements	Complex and uncertain (many regulatory protocols such as waste disposal and transport not yet developed)
Centrus (US) Framatome (US) Global Nuclear Fuel (US) Westinghouse (US) / Springfields (UK) Orano (Europe) Urenco (Europe)	Key suppliers for fleet deployment	US production insignificant compared to required quantities. Existing enrichment facilities cannot be modified to produce HALEU (15-20), entirely new facilities with higher Class 2 security ² will require years to establish at high cost.

1. Norman et al. "How Much Does it Cost to Develop New Nuclear Fuel Capacity." *Third Way*, 28 June 2023, <https://www.thirdway.org/blog/how-much-does-it-cost-to-develop-new-nuclear-fuel-capacity>.

2. "Physical Security Requirements for Facilities with Category II Quantities of Special Nuclear Material Informational Sheet." NRC, <https://www.nrc.gov/docs/ML2117/ML21172A282.pdf>.

IMSR Plant Serves Two Vast and Linked Markets: Industrial Process Heat (\$0.8 T) and Electricity (\$0.6 T) in OECD Economies

\$1.4 T
Current SAM¹

Total serviceable addressable market (SAM) for IMSR Plants is expected to grow 35% to \$1.9 T by 2050¹

1. Company internal projection.



OECD
industrial heat market
(\$800 B)



OECD
electricity market
(\$600 B)

Industrials require clean firm low-cost thermal energy at high-temperatures for manufacturing processes. This is beyond the capabilities of legacy nuclear plants and today it is almost universally supplied with fossil fuel combustion.

IMSR Plants deliver best-in-class high-temperature thermal output, which can replace fossil fuel combustion in many industrial processes. This output also enables electricity generation at up to 50% higher efficiency than legacy nuclear for transformative capital efficiency and cost improvement.

Designed to separate the nuclear and thermal/electric systems, the IMSR Plant can be built initially to supply steam from natural gas combustion, then later be switched to nuclear energy, allowing rapid initial deployment and without requiring nuclear regulatory re-approval, to “cogenerate” both high-temperature heat and low-cost electricity for industrial use.

IMSR Plants provide clean, firm electric power for industrial and municipal use. It is a logical solution for large data center supply and for coal plant replacement.

IMSR Plant output can rapidly load-follow (i.e., adjusts its output to demand) and the plant Thermal and Electric Facility (TEF) can be hybridized with other energy systems and supply, such as natural gas and renewables.

IMSR Plants enable distributed generation as they are deployable at or near industrial site, including co-located for dedicated industrial heat and power supply.

IMSR Plant design is small and modular, which enables fast construction and decentralized generation at individual industrial sites, coal plant sites, data centers, and for smaller grids/electrical markets.

IMSR Plants have a 50+ year operating life, which is expected to be more competitive than coal-fired power generation fuel supply, inclusive of fuel and transportation costs.

IMSR Plant at-a-Glance: High-temperature, Low-pressure Operation with High Inherent Safety Delivers Superior Capital Efficiency Over Legacy Nuclear and other Gen IV Technologies

585 °C



IMSR heat supply is best-in-class, vs 270-299 °C from Gen III+ and 440-585 °C from other Gen IV competitors

44% vs 30%



Electricity is generated up to ~50% more efficiently than legacy nuclear power plants

\$8.6



Exceptional levelized cost of heat (LCOH) \$8.6 per MMBtu¹

\$69



Exceptional levelized cost of electricity (LCOE) \$69 per MWh(e)¹ for dispatchable/ base load applications

822 MWt



IMSR Plant provides co-located or near-location cogeneration at industrial scale (822 MWt / 390 MWe net)

65 years



IMSR builds on over 65 years of proven, prototyped and demonstrated molten salt technology using innovative enhancements applied to the U.S. DOE's Oak Ridge National Lab's base design

50+ years



Long operational life of IMSR Plants

Fuel at standard enrichment

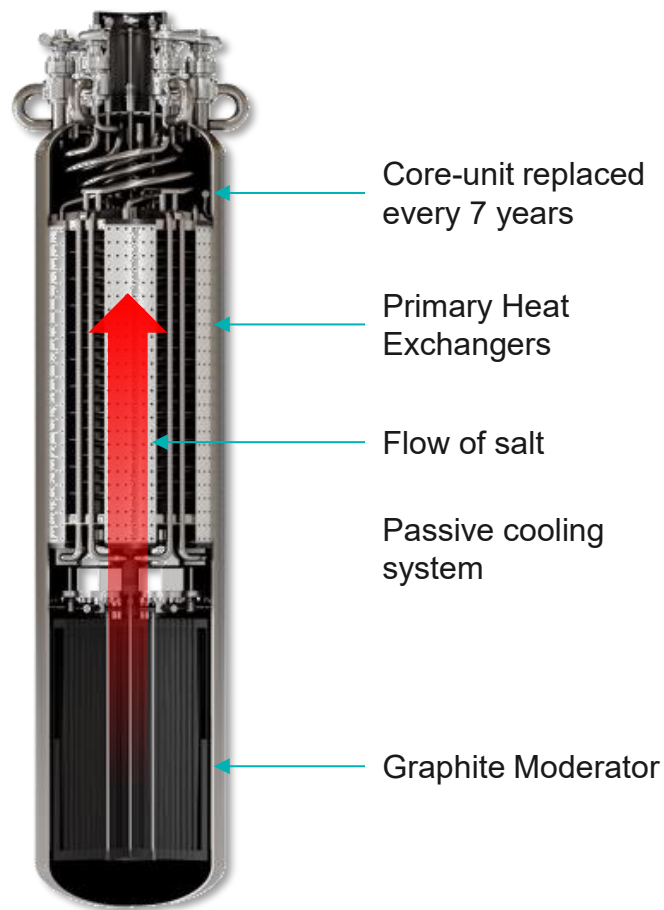


IMSR Plant uses standard-assay low enriched uranium (SALEU) in its fuel, readily available from North American and Western European sources

1. IMSR LCOE and LCOH are Terrestrial Energy's internal estimates at NCP status.

Innovative and Patented Replaceable IMSR “Core-unit” Solves the Key Industrial Maintenance Challenge for the MSR, Releasing the technology’s commercial potential

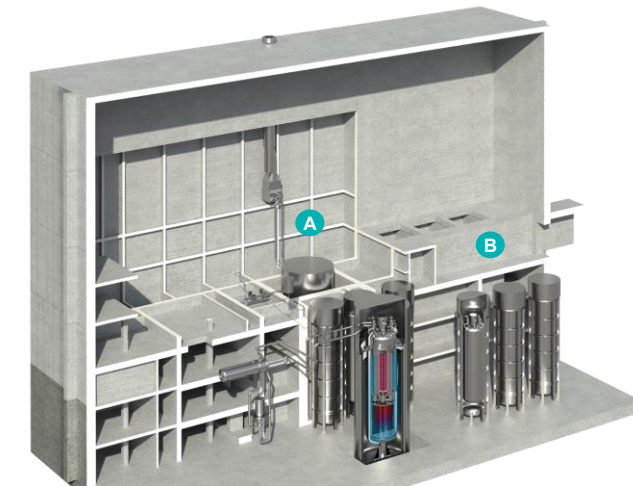
01 | IMSR Core-unit cut-away (illustrative)



All primary reactor components will be contained in the sealed and replaceable “Core-unit”

- ✓ Key innovation is integration of all primary reactor components into a sealed, compact and replaceable reactor vessel designed to have a 7-year operating life:
 - Reactor graphite core
 - Primary heat exchanger
 - Pumps
- ✓ This “integral” design captures commercial value through:
 - Maintenance simplicity of “plug-and-play”
 - High capital efficiency
- ✓ IMSR Plant has strong IP
 - 90 patents pending or granted across 6 invention families

02 | Cut-away reactor building, one of two in the IMSR Plant (illustrative)



The sealed IMSR Core-unit innovation delivers safety and operational simplicity for commercial operation

- ✓ Each Reactor Building houses one reactor **A** operating in one of two operating silos along with storage for six IMSR Core-units **B** arranged in two rows of three.
- ✓ At the end of each 7-year cycle, the spent IMSR Core-unit is swapped with a new one previously installed in the adjacent operating silo in a planned, safe, and efficient manner.
- ✓ Consequently, eight IMSR Core-units can be operated sequentially over the 56-year plant lifetime

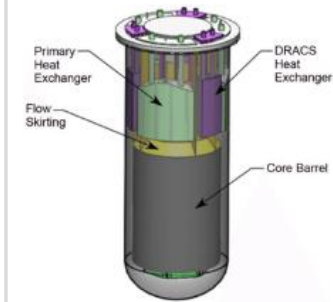
IMSR is Built on 65 Years of National Lab Proven and Demonstrated MSR Technology



1958-1969

Molten Salt Reactor (MSR) research program started in the 1950s^{1, 2}

- Molten Salt Reactor Experiment (MSRE) at Oak Ridge National Laboratory (ORNL) highly successful and lays foundation for future molten salt reactor designs
- Built/operated for 13,000 hours



2010

- ORNL pre-conceptual design for Small Modular Advanced High-Temperature Reactor (Sm-AHTR), using solid fuel and molten salt cooling⁴
- Key innovation: Cartridge core design

CONCEPTUAL DESIGN CHARACTERISTICS OF A DENATURED
MOLTEN-SALT REACTOR WITH ONCE-THROUGH FUELING

J. N. Engel W. N. Orleans
H. F. Bauman H. E. McCoy
J. F. Dooling W. A. Khawaja

Date Published: July 1980

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it is subject to revision or correction and therefore should not be disseminated
without approval.

Prepared by the
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37830
operated by
UNION CARBIDE CORPORATION
for the
DEPARTMENT OF ENERGY

1980

- Denatured Molten Salt Reactor (DMSR)³ conceptual design developed at ORNL
- Key innovation: Use of SALEU with a once-through fuel cycle for strong proliferation defenses



>2012

Terrestrial Energy's IMSR combines these critical innovations

- Use of SALEU fuel with a once-through fuel cycle
- Integral core architecture

IMSR is a molten salt reactor that uses:

- ✓ Fluoride salt chemistry
- ✓ SALEU-fueled once-through fuel cycle
- ✓ Thermal spectrum
- ✓ Graphite moderator
- ✓ Integral reactor core architecture

1. "A Look Back: The Molten Salt Reactor Experiment." ORNL, 01 June 2016, <https://www.ornl.gov/molten-salt-reactor/history>.

2. "ORNL-2474 Molten-Salt Reactor Program Quarterly Progress." ORNL, <https://energyfromthorium.com/pdf/MSRP-TOC.pdf>.

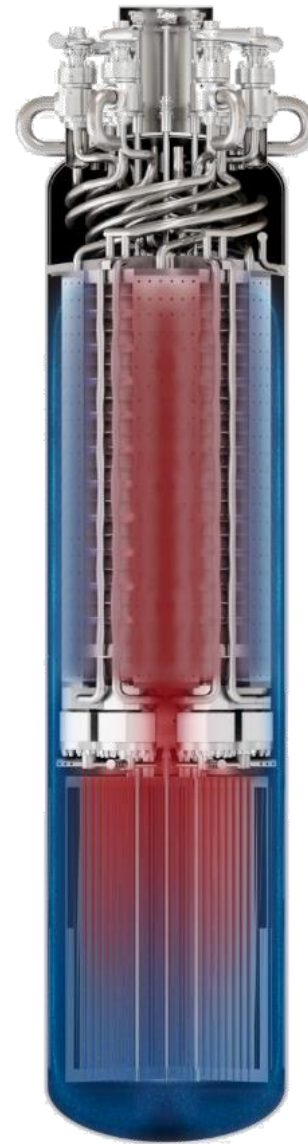
3. Engel et al. "Conceptual Design Characteristics of a Denatured Molten-Salt Reactor with Once-Through Fueling." ORNL, July 1980, <https://www.osti.gov/servlets/purl/5352526>.

4. Greene et al. "Pre-Conceptual Design of a Fluoride-Salt-Cooled Small Modular Advanced High-Temperature Reactor (SmAHTR)." ORNL, Dec. 2010, <https://info.ornl.gov/sites/publications/files/Pub26178.pdf>.

Source: ResearchGate; ORNL; Company

Compared to Legacy Nuclear Technology, IMSR Offers Transformative Advantages on a Range of Technical and Economic Factors

- ✓ IMSR's key technology advantage is from the use of a molten salt coolant and fuel
- ✓ Molten salt is a superior coolant relative to traditional cooling mechanisms of legacy nuclear (based on water, pumps, actuators, etc.) and is foundational to the compelling economic and use-case advantages of the IMSR Plant

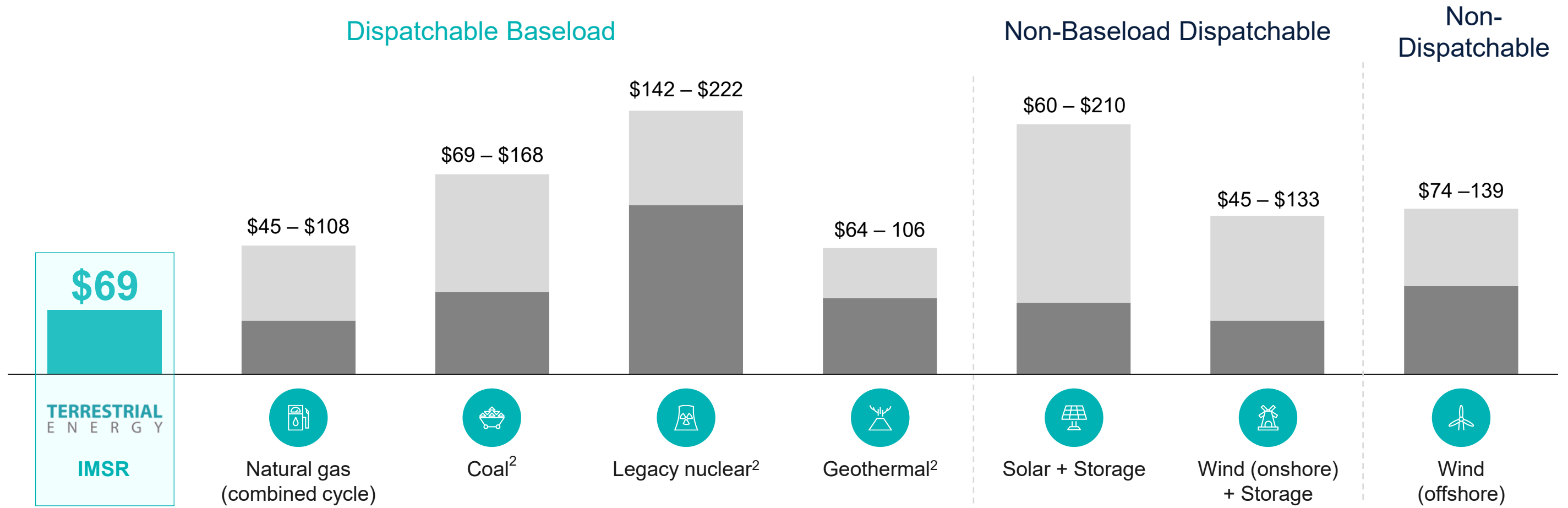


	IMSR Plant	Legacy Nuclear Plant
Coolant	Molten Salt	Water
Temperature of Thermal Supply	585°C	~270°C
Net Thermal Efficiency of Electricity Generation	44%	~30%
Pressure	Low: 1 bar (atmospheric)	High: 55-150 bar
Application	Industrial heat & electric power	Electric power only
Modularity	Standardized, factory prod.	Bespoke on one-off basis
Inherent load-following	Yes	No
Construction & Commissioning Time	Under 4 Years	~10 Years
Unit Capital Cost	~\$1-2 B upfront ¹	Over \$10 B upfront
Capacity (net)	822 MWt / 390 MWe	1,000+ MWe
Levelized Cost of Heat (\$/MMBTU)	8.60	N/A
Levelized Cost of Electricity (\$/MWh)	69	Over 140 ²
Fuel Cycle	7 years	18-24 months
Waste	32% less fission product waste per kWh(e) by mass	Baseline waste quantities

1. Range for IMSR reflects estimated unit capital cost to the owner-operator at Nth Commercial Plant (NCP) status based on Terrestrial Energy internal estimates.
 2. "Levelized Cost of Energy+." Lazard, June 2024, https://www.lazard.com/media/xemfey0k/lazards-lcoepplus-june-2024-_vf.pdf.

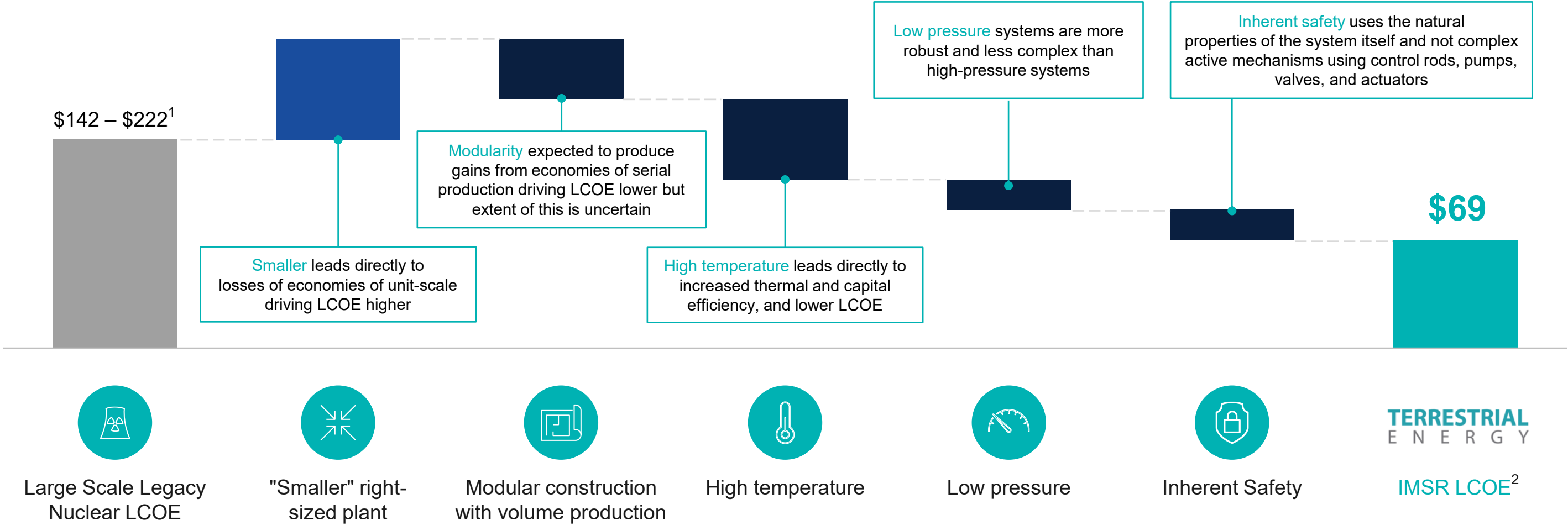
At Fleet Scales, IMSR Plant Offers Clean Firm Efficient Electricity Generation at the Cost and Scale Required

Unsubsidized high and low levelized cost of electricity (LCOE) across multiple power generation sources (\$ / MWh)¹



1. IMSR LCOE is Terrestrial Energy's internal estimate at NCP status. All other ranges are from the Lazard 2024 LCOE+ report.
 2. Lazard 2024 LCOE+ report indicates limited public and/or observable data available for new-build geothermal, coal, and nuclear projects.

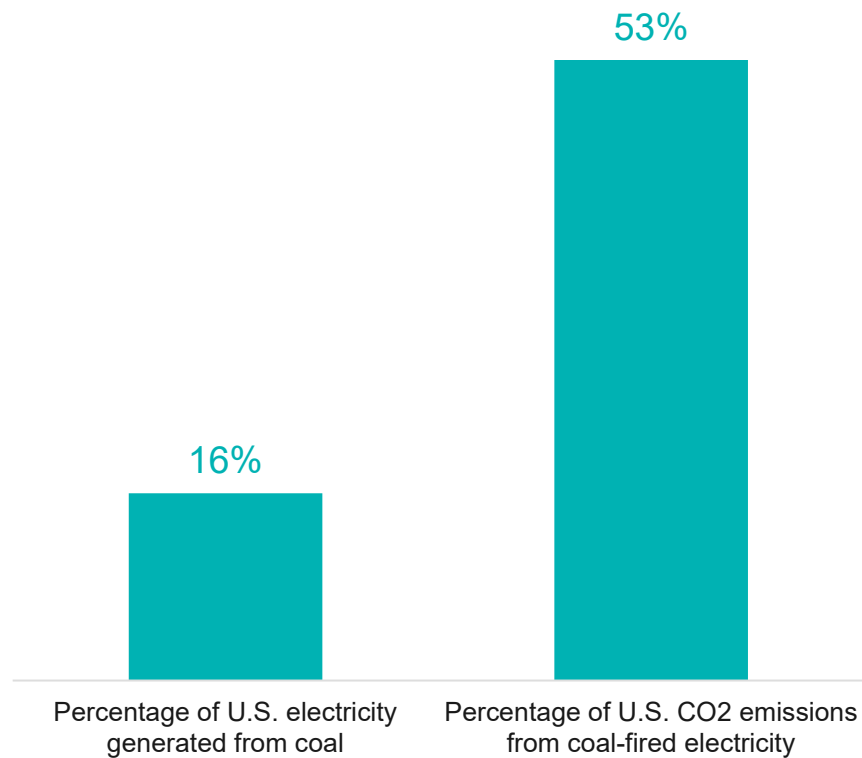
IMSR Technology Fundamentals Drive Down the LCOE – Illustrative



1. "Levelized Cost of Energy+." Lazard, June 2024, https://www.lazard.com/media/xemfey0k/lazards-lcoeplus-june-2024-_vf.pdf.
 2. IMSR LCOE is Terrestrial Energy's internal estimate at NCP status.

IMSR Plants can Uniquely “Retrofit” Existing Coal Plants for Carbon-free and Air Pollution-free Electricity Generation

Coal is dirty yet essential^{1,2}



Nuclear in general and IMSR in particular are an ideal “hand-in-glove” solution³



In 2022, U.S. DOE commissioned a report that found:

- 80% of all retired and operating coal power plant sites can host an advanced nuclear reactor
- Significant primary and secondary environmental and economic benefits of IMSR



- IMSR Plants supply steam at 585 °C, the equivalent temperature and pressure of a coal-fired steam boiler
- IMSR Plant’s separation of Nuclear Facility from non-nuclear Thermal and Electric Facility (TEF) ideal to retrofit coal plants

Retrofitting coal-to-nuclear results in significant primary and secondary benefits²

86%

Reduction in greenhouse gas emissions per region

650

Permanent new jobs created per region

\$275M

Additional economic activity per region

92%

Implied increase in tax revenue per region

15-35%

Capital costs savings vs. greenfield due to ability to reuse existing equipment and infrastructure

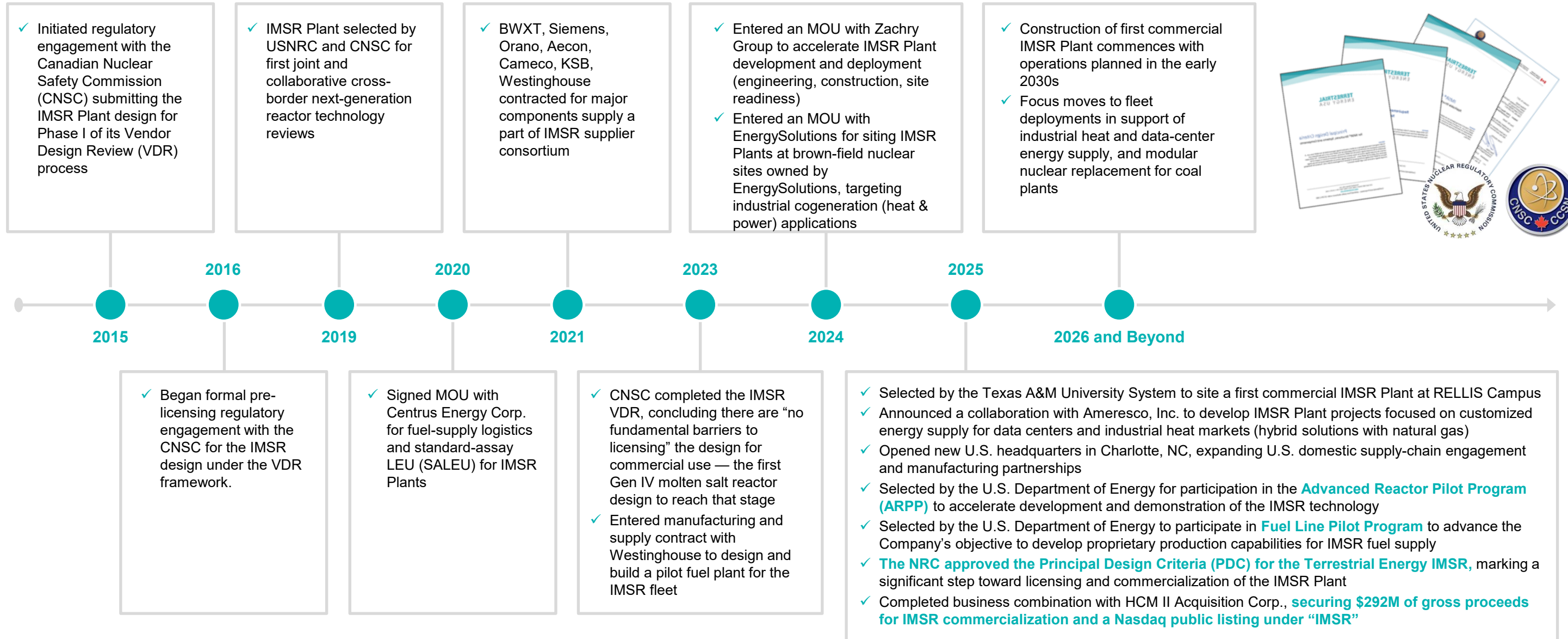
1. “What is U.S. electricity generation by energy source?.” *US Energy Information Administration*, 29 Feb. 2024, <https://www.eia.gov/tools/faqs/faq.php?id=427&t=3>.

2. “How much of U.S. carbon dioxide emissions are associated with electricity generation?.” *US Energy Information Administration*, 30 Nov. 2023, <https://www.eia.gov/tools/faqs/faq.php?id=77&t=2>.

3. Hansen et al. “Investigating Benefits and Challenges of Converting Retiring Coal Plants into Nuclear Plants.” *US Department of Energy*, 13 Sep. 2022, <https://fuelcycleoptions.inl.gov/SiteAssets/SitePages/Home/C2N2022Report.pdf>.

Milestone Progress

Systematic development program for IMSR Plant with a 10-year track record of milestones achieved



Terrestrial Energy — A Market Leader in Regulatory Engagement for Gen IV Reactors

- ✓ Terrestrial Energy was the first Gen IV nuclear plant developer to receive a completed nuclear regulatory review



ACTIVE ENGAGEMENT – UNITED STATES

- U.S. NRC engagement since 2017, with technical reviews, White Papers, and Topical Reports
- First Gen IV reactor chosen for joint U.S. NRC/CNSC review (2021)
- **U.S. NRC issued its Safety Evaluation and approved the Principal Design Criteria (PDC) for Terrestrial Energy's IMSR (2025)**
- Pre-application activities underway toward Standard Design Approval



INTERNATIONAL ALIGNMENT

- IAEA engagement began in 2020, aligning IMSR with international nuclear safety frameworks
- Supports deployments outside North American markets



COMPLETED REGULATORY REVIEW – CANADA

- **First Gen IV reactor** to complete the **Canadian Nuclear Safety Commission (CNSC) Vendor Design Review (VDR) in 2023**
- **CNSC conclusion: “No fundamental barriers to licensing”** IMSR Plant for commercial use
- Established a **clear licensing pathway** for future IMSR deployment in Canada and precedent for successful regulatory engagement in other markets

Contracts Entered with Leading Group of Suppliers for Services and Components

- ✓ Blue-chip service and major component suppliers support **deployment readiness**
- ✓ Awards to top-tier suppliers of engineering and operations services inspire nuclear **market confidence**
- ✓ Predominantly U.S. supply chain enables best use of local **economic benefits and tax credits**

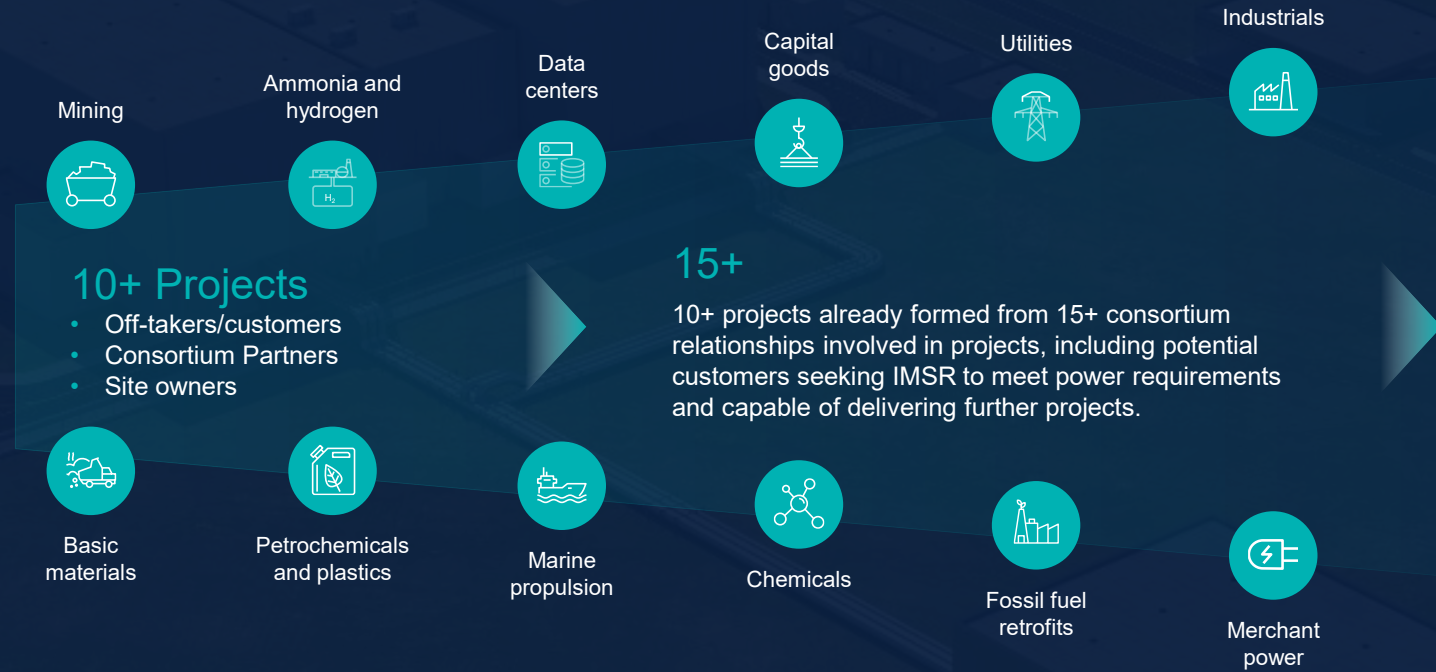
Plant & Infrastructure	    
Nuclear fuel	   
R&D	       
Graphite	    
Services	    

*Tier 2 supplier; subcontractor to Westinghouse

Terrestrial Energy is Scaling Up its IMSR Plant Project Pipeline

✓ Market demand and policy developments are driving deployment in major markets

✓ Terrestrial Energy recent developments illustrate path-to-market, and strategy for fast deployment of an IMSR Plant fleet operating in the 2030s



Recent commercial developments



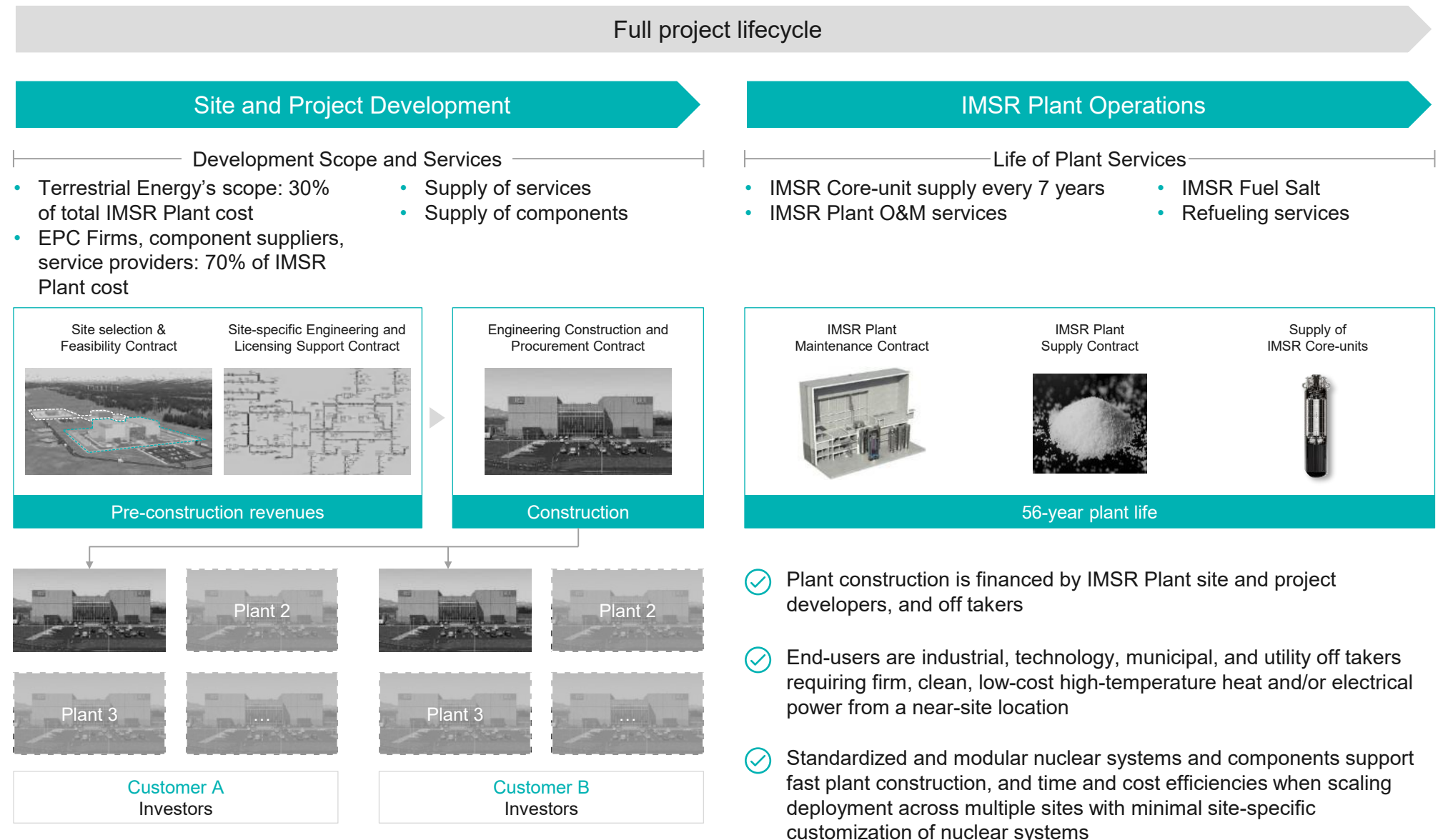
Business Model

Revenues start well before construction at site development project stage and last for the entire operation of the plant

Terrestrial Energy's business is to:

- Supply engineering services for construction and operation of IMSR Plants
- Supply key nuclear components and fuel for construction and operation of IMSR Plants
- Provide a long-term supply of replacement IMSR Core-units and IMSR fuel, as well as operating and maintenance (O&M), and decommissioning services

Terrestrial Energy's customers are site developers, IMSR Plant project developers, and owner-operators





Terrestrial Energy's Low-Capex Business Model Taps Four Revenue Streams Across the IMSR Plant's 50+ year Lifecycle

Note: Unit economics reflect Terrestrial Energy management estimates at NCP status.

Segment	Description	Cumulative revenue \$M	Total %	Gross margin %
Pre-construction services	Site selection, site and use-specific engineering studies for construction and licensing planning preparation	\$75	4%	31%
Construction services & component supply	Supply of services and components as set out in the Company's Product Delivery Model for construction and commissioning of an IMSR Plant	\$486	23%	27%
Post-construction IMSR Core-unit supply	Supply of replacement IMSR Core-units every seven years. Contracted ongoing O&M services to the power plants for the duration of operational life (50+ years)	\$1,148	55%	20%
Post construction IMSR fuel supply	Supply of IMSR Fuel Salt for the ongoing operation of an IMSR Plant	\$389	18%	20%
Cumulative		\$2,098	100%	22%

TERRESTRIAL ENERGY



Compelling demand tailwinds for clean, firm power for grid robustness, national and energy security requirements, and from AI datacenter construction growth



Innovative, **proven IMSR technology with transformative potential for nuclear energy supply**



Strategic market opportunity with early mover advantage



Multitrillion USD TAM potential across multiple market verticals and geographies for large economic upside



Strongly differentiated technology and plant design

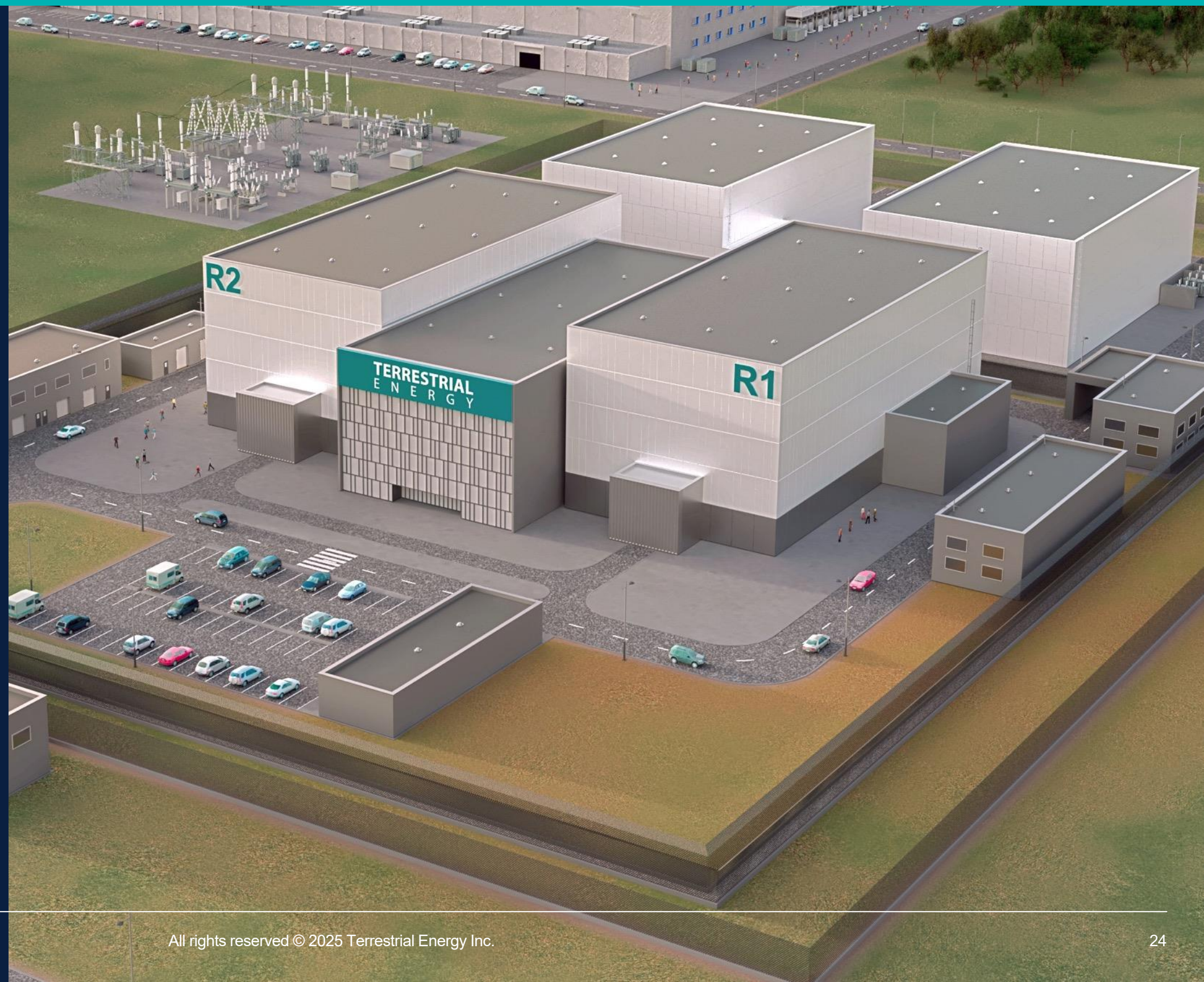


Capex light business strategy for speed-to-market at scale and revenue growth



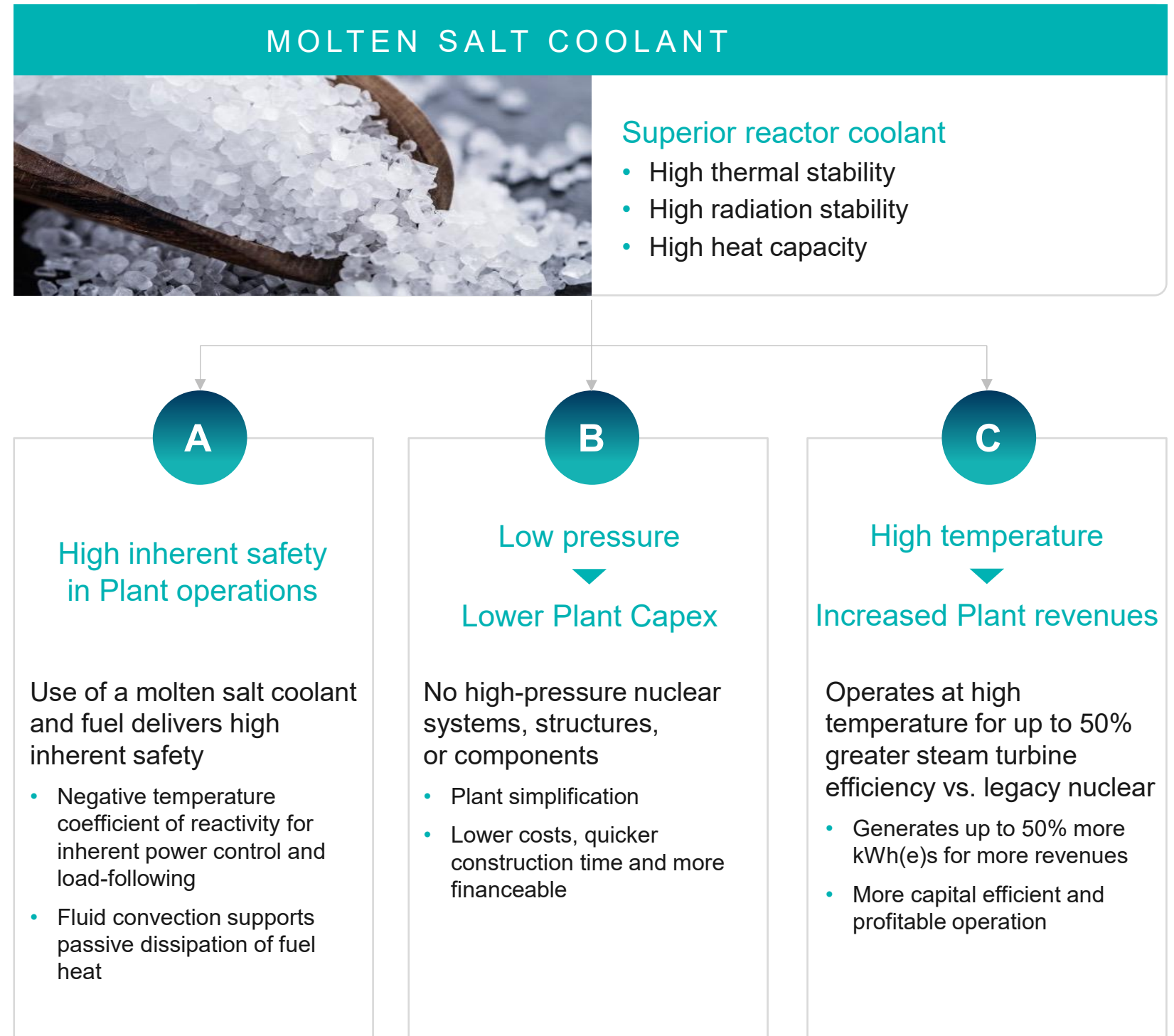
Experienced management team and a business with a 13-year operating record

APPENDIX

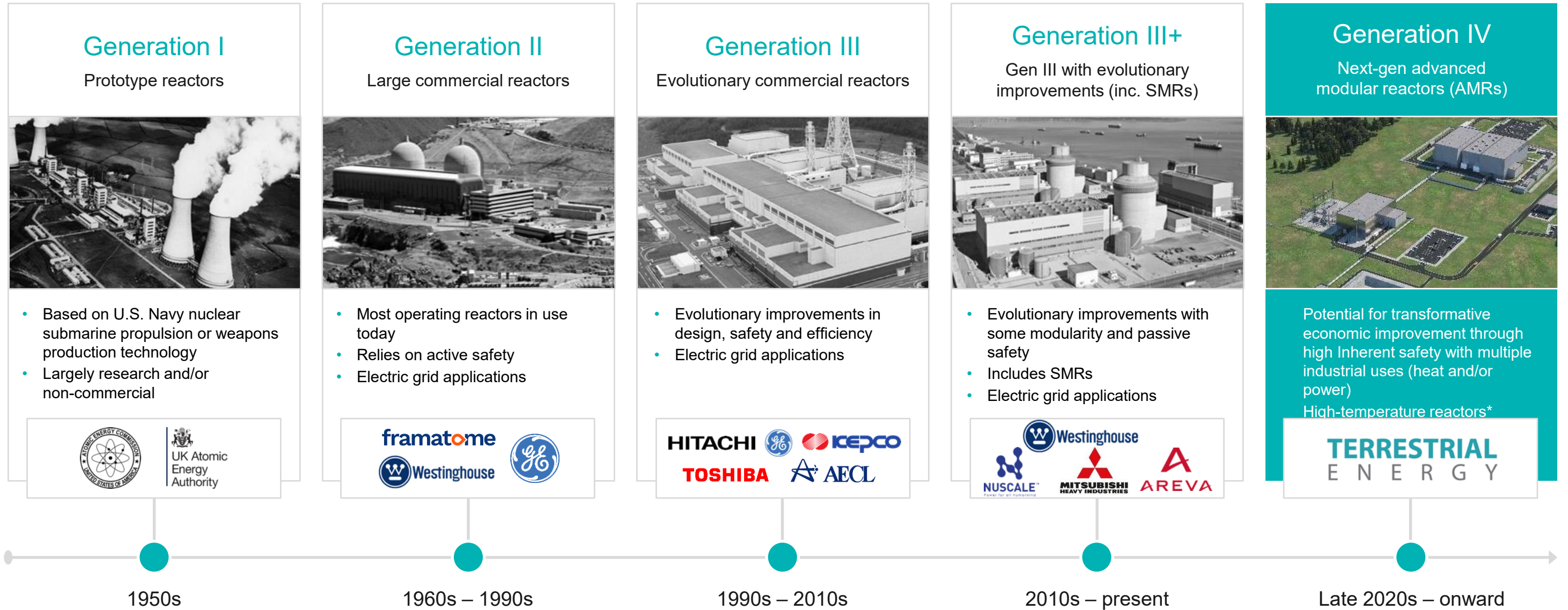


IMSR Plant's Technology and Design Choices Drive Large Economic Advantages

- ✓ High thermal stability of molten salt enables **safe high-temperature and low-pressure operation** with high inherent safety, which drives **high capital and operating efficiencies**, as well as power plant revenue and profitability
- ✓ TEF flexibility enables **integration of natural gas as a bridge** to rapid commercial operation and use as back-up during nuclear systems' operation
- ✓ The IMSR Plant at **390 MWe** is **ideally suited** for industrial applications, data centers, and grid applications, including replacing fossil plants
- ✓ The IMSR Plant is modular with factory-built components for faster on-site assembly. It is land-use efficient – requiring a fraction of the physical footprint of conventional plants – **enabling siting flexibility, lower capital costs, and shorter construction schedules**



IMSR has the Potential to Transform Nuclear Energy Supply



*High temperature steam sufficient for chemical processes produced by IMSR and high temperature gas reactors

IMSR Captures Inherent Nuclear Safety, Unlike Legacy Nuclear Technologies

IMSR Plant technology and design incorporates **inherent nuclear safety**, with compelling cost and commercial advantages over the active and passive safety requirements of legacy nuclear technology



Control

IMSR fission heat generation is inherently **load-following**. Fission power immediately drops to zero when heat demand ceases without operator intervention



Cool

Molten salts have exceptional thermal stability and are **superior reactor coolants**. As the fuel is in molten form, it uniquely enables inherent nuclear fuel cooling through convection. In addition, passive cooling systems remove decay heat from the reactor vessel



Contain

Molten salt reactors enable the use of **low-pressure cooling systems**. As the fuel is mixed with the coolant, fission products are inherently contained by salt chemistry – this simplifies engineering and containment requirements

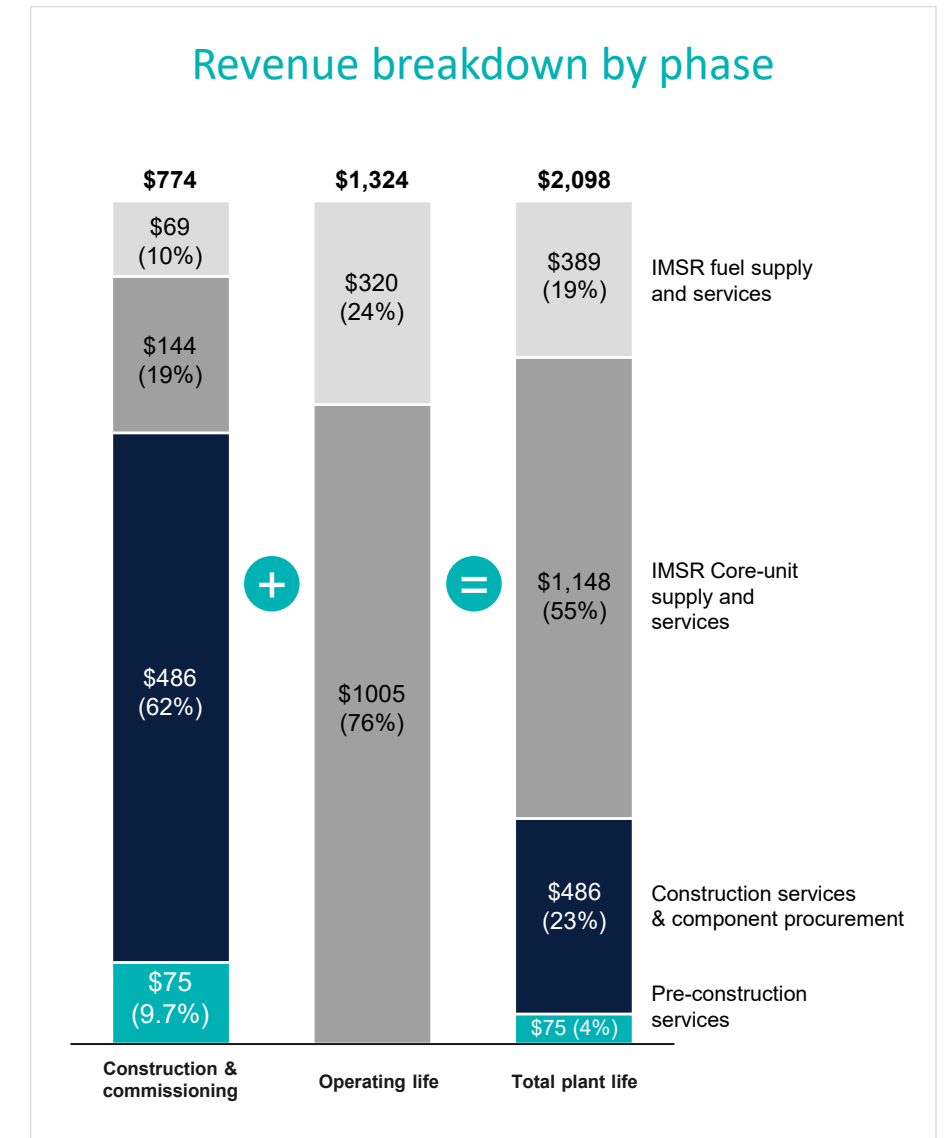


IMSR inherent safety methods create a robust safety framework and reduce Capex of nuclear energy across all three safety pillars for commercial reactor operation

Illustrative IMSR Plant Unit Economics (USD M)

(\$ in M USD)

	Construction and Commissioning to T=0					Operating life 56 years	Total plant life 60+ years
	<T-4	T-4	T-3	T-2	T-1		
Revenues							
Preconstruction services	75	-	-	-	-	-	75
Construction services and component procurement	-	63	105	161	158	-	486
IMSR Core-unit supply and services	-	-	-	-	144	1,005	1,148
IMSR fuel supply and services	-	-	-	-	69	320	389
Total revenues	75	63	105	161	370	1,324	2,098
Gross profit							
Preconstruction services	23	-	-	-	-	-	23
<i>Gross margin</i>	31%	-	-	-	-	-	31%
Construction services and component procurement	-	17	28	44	43	-	132
<i>Gross margin</i>	-	27%	27%	27%	27%	-	27%
IMSR Core-unit supply and services	-	-	-	-	29	201	230
<i>Gross margin</i>	-	-	-	-	20%	20%	20%
IMSR fuel supply and services	-	-	-	-	14	64	78
<i>Gross margin</i>	-	-	-	-	20%	20%	20%
Total gross profit	23	17	28	44	85	265	462
<i>Gross margin</i>	31%	27%	27%	27%	23%	20%	22%



A proven leadership team

Terrestrial Energy Leadership

A leadership team with extensive experience across scientific, commercial, and policy realms



Simon Irish

CEO, Director

- Extensive investment banking and investment management experience
- Former U.S. investment head of a leading global investment business



David LeBlanc, PhD

CTO, Director

- Globally recognized expert leader on molten salt reactors
- Sole private sector member to Gen IV International Forum inter-government research group on advanced reactors



William Smith, P. Eng.

COO

- Over 40 years experience in nuclear energy
- Former SVP of Siemens Energy Canada
- Former VP at Ontario Power Generation



Brian Thrasher

CFO

- Over 25 years of financial management experience holding executive management positions at multibillion-dollar companies
- Former CFO at Hilco Transport, Inc.



Steve Millsap

General Counsel, Secretary, & Chief Compliance Officer

- Over 27 years of broad-based legal experience, including 24 years as in-house counsel to industry-leading private and public companies in the technology, industrial, manufacturing, automotive, aerospace, and consumer products sectors



Robin Rickman

VP Business Strategy

- Over 40 years of nuclear experience, including with U.S. Navy/DoD, U.S. DoE, and private sector
- Former Director of Westinghouse New Reactor Projects



A proven leadership team

Terrestrial Energy Leadership

A leadership team with extensive experience across scientific, commercial, and policy realms



Iftikhar Haque

VP Nuclear Supply Chain

- Over 35 years of supply chain experience, over 20 in the utilities sector as a supply chain leader
- Former VP supply chain at multiple utilities and suppliers



David O'Keefe

VP, Business Development & Project Management

- Over 25 years of experience in the energy industry, including the nuclear fuel cycle and wholesale electric power
- Former Director of Business Development at Centrus Energy Corp



Dara Harrison

VP Human Resources

- Over 20 years of human resources experience supporting the engineering and energy industries within the United States and Canada
- Former HR leader at many companies including Eaton, AtkinsRéalis and Fluor



Sarfraz Taj

VP Business Development

- Over 20 years of nuclear experience, including supporting operating reactors, project development, and corporate transactions
- Former Director of Mergers & Acquisitions and Strategic Projects at Constellation Energy



Frank Akstulewicz

Licensing Manager

- Over 40 years of experience in with the NRC, serving in numerous executive leadership and staff positions within the agency
- Former Branch Chief of the Nuclear Performance and Code Review Branch in NRR



Jim Howe

VP Government Relations

- Over 20 years of experience in Washington, DC, serving in government affairs, policymaking, advocacy, and communications roles



Glossary

Term	Definition
Base load	The minimum amount of electric power delivered or required over a given time period at a steady rate.
Core-unit	The term to denote the vessel that contains the primary components of the IMSR, the reactor core, heat exchangers, pumps, etc.
DOE and LPO	The United States Department of Energy, and its affiliated Loan Programs Office, which provides loan guarantees to assist in financing energy infrastructure projects.
FCP/NCP	An engineering concept referring to First Commercial Plant and Nth Commercial Plant, reflecting the reduction in price as processes mature and companies proceed along the learning curve. Terrestrial Energy's unit economics are based on NCP estimates, projected to be achieved at the 20th IMSR Plant.
Full lifecycle	The full lifespan of a specific plant, including pre-construction, construction, operations, and decommissioning.
Gen IV	Generation IV nuclear technology, which improves upon Generation III+ technologies (current reactors) through two important improvements: 1) ability to generate high-temperature heat (>400 °C) appropriate for use in industrial applications, and 2) high inherent safety incorporated into the design, versus active and passive safety systems of previous generations. Generation IV technology governed by the Generation IV International Forum, an intergovernmental forum representing 40 countries.
HALEU (15 -20)	HALEU (15 – 20) stands for “High-Assay Low Enriched Uranium” enriched to 15-20% (>15% is required for several other Gen IV nuclear technology)
SALEU	SALEU stands for “Standard-Assay Low Enriched Uranium”, which is U-235 which has been enriched to <5%. Currently, SALEU is readily commercially available from North American and Western European suppliers.
Inherent safety	A proactive approach to process safety in which hazards are eliminated or lessened to reduce risk without engineered or procedural intervention. A nuclear reactor with high inherent safety may rely upon natural phenomenon such as natural circulation or negative feedback power coefficients to achieve a safe state as opposed to older plants that use active safety (e.g. pumps, actuators, valves) to manage risk.
kWe/MWe vs. kWth/MWth	The distinction between power being generated for electricity (“e”) versus for thermal/heat (“th”). Generating electricity is a direct function of the thermal efficiency of the plant. In the IMSR’s case, the plant generates 822 MWth or 390 MWe.
kWh/MWh	Kilowatt-hour / megawatt-hour, or the production of that amount of energy for an hour.
LCOE	Levelized cost of electricity. A measure of the all-in cost of electricity generation to the owner/operator over the life cycle of the plant, including upfront CAPEX, ongoing OPEX, etc.
Legacy nuclear	Nuclear reactor technologies used in the market today, such as Boiling Water Reactors and Pressurized Water Reactors. They are classified as “Generation III+” or below.
Load-following	A power plant that can adjust its power output on demand.
U.S. NRC / CNSC	United States Nuclear Regulatory Commission and Canadian Nuclear Safety Commission, respectively, government agencies of their respective countries tasked with regulating civilian uses of nuclear energy.
OECD	Organisation of Economic Co-operation and Development, a multilateral organization of 38 member countries, the majority of which are high-income economies.
Utilization factor	A measure of “uptime” for a facility, which reflects total operating time less planned and unplanned downtime for maintenance, etc. Utilization factors of 90-95% are typical for nuclear power plants.
VDR	Vendor Design Review. A voluntary high-level review process offered by the CNSC to provide pre-licensing feedback regarding the extent to which the reactor design meets CNSC requirements.

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Making transformative
nuclear energy a commercial
reality

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