
energy
Clean • Safe • Secure • Affordable

Two Challenges in Opposition

Global Electricity **Demand Up** 80-150% by 2050(1)

Need to drastically **Reduce Carbon** Emissions

Fossil fuels currently supply **~80%** of global energy(1)

Nuclear is the only energy source for reliability and decarbonization

- "Always-on" baseload energy
- Generates zero carbon emissions
- Can be flexibly located near load centers

"Nuclear power plays a significant role in a secure global pathway to net zero" (2)

1) *Source: IEA World Energy Outlook 2023. Range reflect IEA's STEPS and NZE scenarios*
2) *Source: IEA Nuclear Power and Secure Energy Transitions Report (June 2022)*

Why Invest in X-energy?

COMPELLING CLEAN ENERGY TAILWINDS

Nuclear is key to energy transition and energy security investment themes

X-energy is able to decarbonize power and industrial end markets and provide reliable and continuous operations

TECHNOLOGY LEADERSHIP

A prominent player in next generation nuclear reactors

X-energy's design drives enhanced safety, lower cost, faster construction timelines, and modular scalability vs. conventional nuclear

WORLD CLASS FIRST CUSTOMER

Key differentiation relative to other first-of-a-kind SMR projects

X-energy has partnered with Dow, Inc. ("Dow") on its first project

SUBSTANTIAL GOVERNMENT SUPPORT

$1.2 billion of current federal grants

1 of 2 demonstration awards (out of 30+ applicants) from the Department of Energy's ("DOE") Advanced Reactor Demonstration Program ("ARDP")

VALUATION INFLECTION POINT

Attractive entry valuation with structural seniority

X-energy is approaching material value creation milestones, including filing of construction permit and completion of final reactor design

BLUE CHIP INVESTORS

Validation from leading strategic and financial investors

Existing investors include Dow, Ontario Power Generation Inc. ("OPG") and Ares Management ("Ares")

X-energy & Gen IV SMRs are Key to the Energy Transition

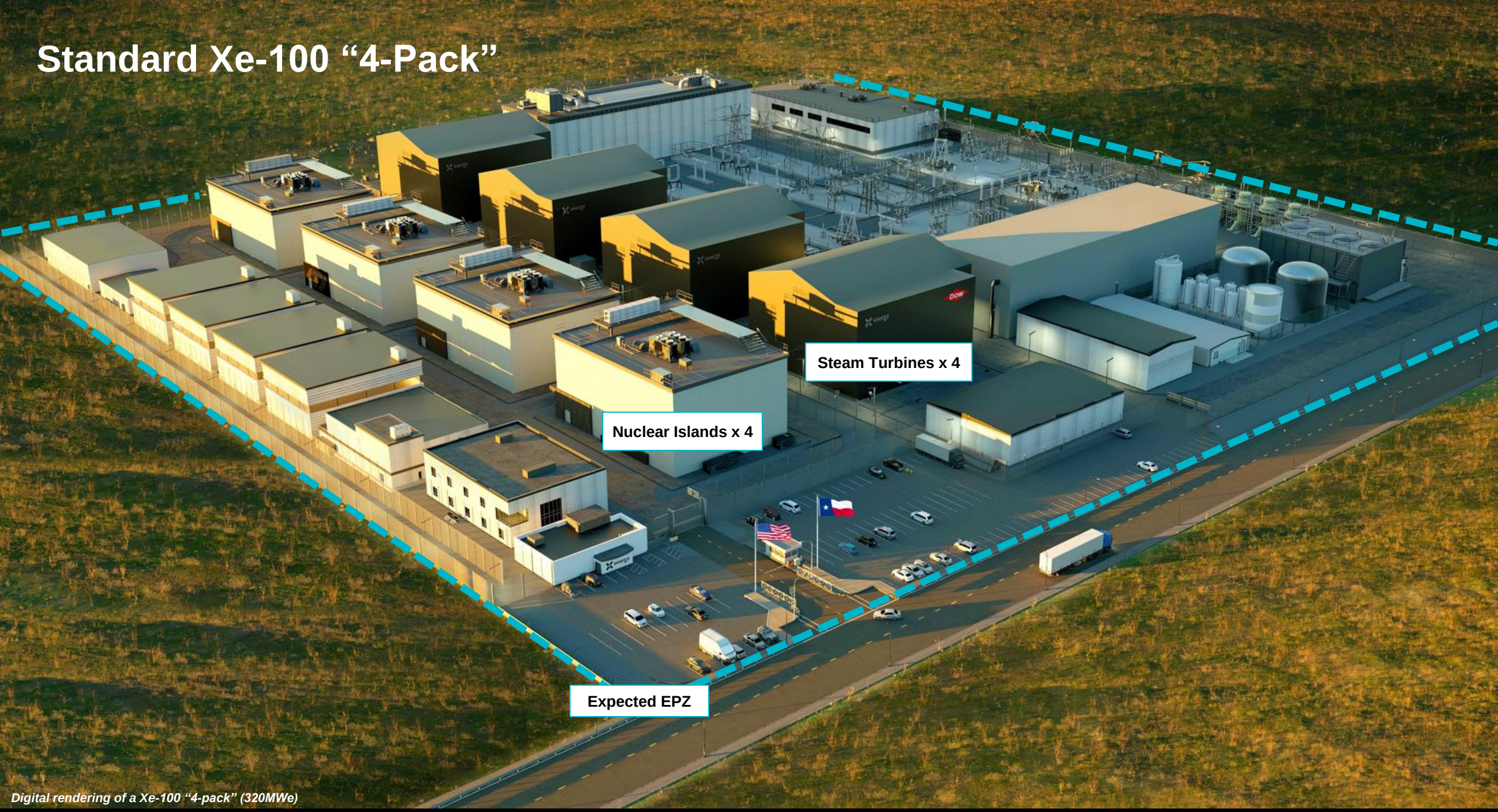
X-energy's solution will outperform other energy sources on key criteria essential to decarbonization

	Fossil Fuels	Renewables (Solar & Wind)	Traditional Large-Scale Nuclear	SMRs [1]	
				Gen III+	energy / Gen IV
Carbon-Free Power	✗	✓	✓	✓	✓
Reliable Baseload Power	✓	✗	✓	✓	✓
Efficient Load Following	✓	✗	✗	✗	✓
Industrial Heat Use Case	✓	✗	✗	✗	✓
Emergency Planning Zone Within Site Boundary	--	--	✗	✓	✓ [3]
Fuel Safety	✗	✓	✗	✗	✓
Siting Flexibility & Land Efficiency	✗/✓	✗	✓	✓	✓

Source: U.S. Department of Energy, U.S. Nuclear Regulatory Commission, Gen IV International Forum, Nuclear Innovation Alliance, Company websites

1) *Advanced Small Modular Reactors ("SMRs")*
2) *The Xe-100 is designed to ramp up or ramp down faster than the existing technologies*
3) *EPZ is expected to match site boundary and is subject to approval by the NRC*

Standard Xe-100 “4-Pack”



Digital rendering of a Xe-100 “4-pack” (320MWe)

X-energy Overview

Founded in 2009

14 years of investment and development

Rockville, MD Headquarters

Rooted in the nuclear community with proximity to the DOE and Nuclear Regulatory Commission (NRC)

50+ Years of R&D

Built upon years of R&D in high temperature gas reactors

~400 Employees

Leading Gen IV nuclear development and licensing team(1)

$1.2bn Federal Funding

Selected for DOE's Advanced Reactor Demonstration Program(2)

~$645mm Investment

Capital invested to date(3)

X-energy Solution

Our High Performing Reactor: Xe-100

- Gen-IV High-Temperature Gas-cooled Reactors (HTGR) have advantages in sustainability, economics, reliability, safety, and versatility in application
- Each reactor will be engineered to operate as a single 80 MWe unit and is optimized as a four-unit plant delivering 320 MWe

Our Clean and Safe Fuel: TRISO-X

- Our reactors will use tri-structural isotropic (TRISO) particle fuel, developed and improved over 60 years
- TRISO is designed not to melt and can withstand extreme temperatures that are well beyond the threshold of current nuclear fuels
- We manufacture our own proprietary version (TRISO-X) to ensure supply and quality control

Other Strategic R&D Initiatives

- We're developing advanced concepts for nuclear power and propulsion for potential military, critical infrastructure and space applications

1) *As of December 2023*
2) *Awarded in December 2020*
3) *As of December 2023, includes $240mm of government funding, $103mm invested capital of Series C-2 financing, including a $30mm investment from Ares Management, and $80mm capital commitment, including $50mm from Ares Management and approximately $30 million from Kam Ghaffarian*

Best Team in the World to Lead This Vision

Dr. Kam Ghaffarian

Co-Founder & Executive Chairman

Dr. Kam Ghaffarian is a billionaire serial entrepreneur who has operated at the frontier of space and energy for 30+ years. Kam's holding company IBX is a world leader in government contracting /

Kam's companies have an 80% government contract win rate over the past 20 years and 100% over the past 4 years where he has won nearly $7B in contracts across his portfolio

Kam has invested ~$100M in X-energy

J. Clay Sell

Chief Executive Officer

Clay Sell has deep professional expertise across many sectors of the international and U.S. energy industry developed through his service in senior-level positions in the private sector and government.

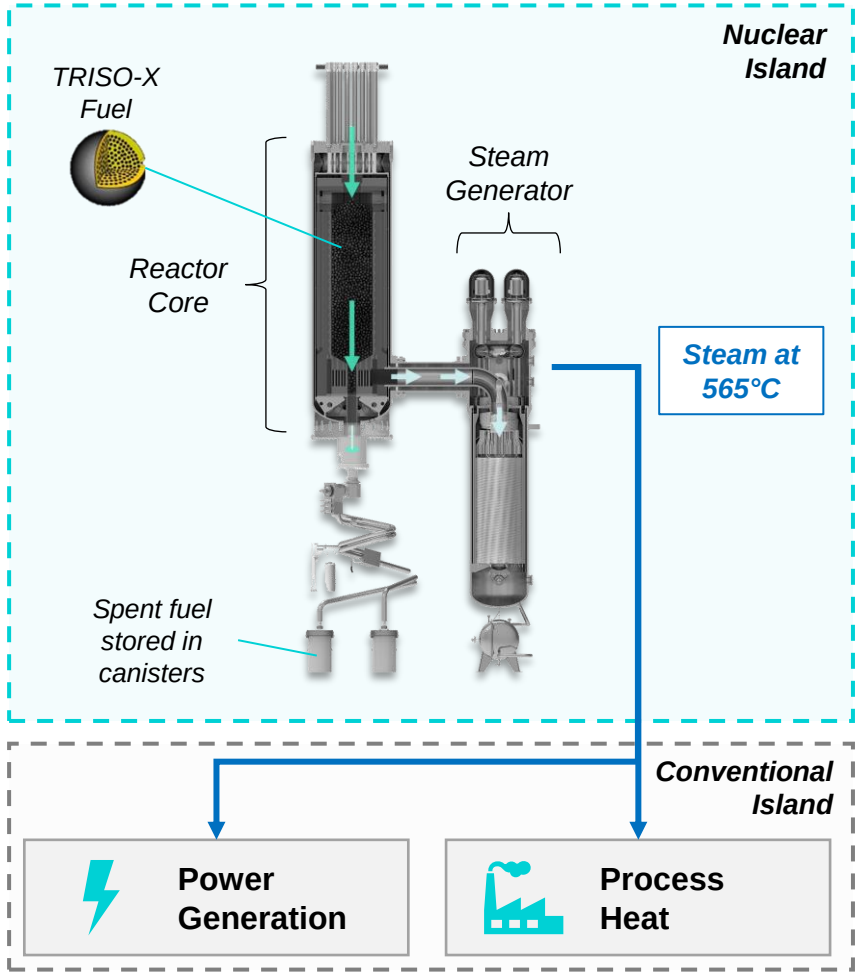
From 2008-2018, Clay was the president of Hunt Energy Horizons, LLC, the renewable energy subsidiary of Hunt Consolidated, Inc.

Previously, Clay held positions for 14 years in the U.S. government, including Deputy Secretary of Energy in the George W. Bush Administration from 2005-2008

Xe-100 – A Pioneering Gen IV Nuclear Reactor

80 MWe modular design & manufactured components designed to drive scalability, accelerated timeline and cost control

Xe-100 Schematic



Modular & Standardized

- Each reactor module is connected to its own steam turbine generator or process heat offtake, so **modules can be constructed / operated independently, and even added as demand grows**
- Onsite work is reduced, and a significant portion of quality control is shifted to centralized fabrication & integration facilities

Manufacturable, Road-Shippable Components

- Simpler, standardized design allows for **mass production of road-shippable components**
- In contrast, the complex design of traditional nuclear construction has required on-site construction

Intrinsically Safe

- **Xe-100 is designed to avoid the need for additional safety systems**
- Intrinsically safe design means **1/6th the safety systems of a traditional reactor** and fewer materials (e.g., ~95% less concrete than legacy nuclear plants)
- Simple control system with only 4 variables expected to allow for more automated operations & fewer personnel

TRISO-X Fuel – Intrinsic Safety

The Department of Energy describes TRISO fuel as "the most robust nuclear fuel on Earth"(1)
It retains waste and fission products within the fuel during all foreseeable adverse conditions, even worst-case accidents, and it is designed not to melt

- **X-energy manufactures its own proprietary TRISO encapsulated fuel ("TRISO-X")** to ensure supply & quality control. TRISO Fuel has a 60+ year demonstrated track record through prototype and full-scale reactors
- HALEU-based fuel like TRISO-X increases burnup and efficiency, which decreases costs
- Because **TRISO-X Fuel IS a containment vessel and is designed not to melt**, the Xe-100 does not require large, expensive concrete & steel containment structures
- The low reactor power density and self-regulating core design means that if cooling stops, the core naturally shuts down. This **prevents the reactor from melting under foreseeable adverse conditions and requires no operator actions under such adverse conditions**

→ **Physics, not mechanical systems, ensures safety**

Fuel Process

Step 1

~15.5% Enriched Uranium Kernel
Feedstock sourced from third parties

Step 2

TRISO Fuel Particle (~1mm Diameter)
Uranium kernel encased in carbon and ceramic layers

Step 3

TRISO-X Fuel Pebble (60mm Diameter)
~18,000 TRISO particles per pebble set in graphite matrix

Step 4

Pebble Bed
>200,000 pebbles form the core of each Xe-100 reactor

1) *Source: Office of Nuclear Energy – TRISO Particles: The Most Robust Nuclear Fuel on Earth (July 2019)*

Versatility Creates Opportunity for New Nuclear Applications

X-energy is targeting end-markets beyond just conventional power generation to satisfy diverse decarbonization needs

Conventional Power Generation

High-Temperature Steam for Industrial Use

Replace & Re-Use Legacy Coal Sites

Canadian Oil Sands Decarbonization

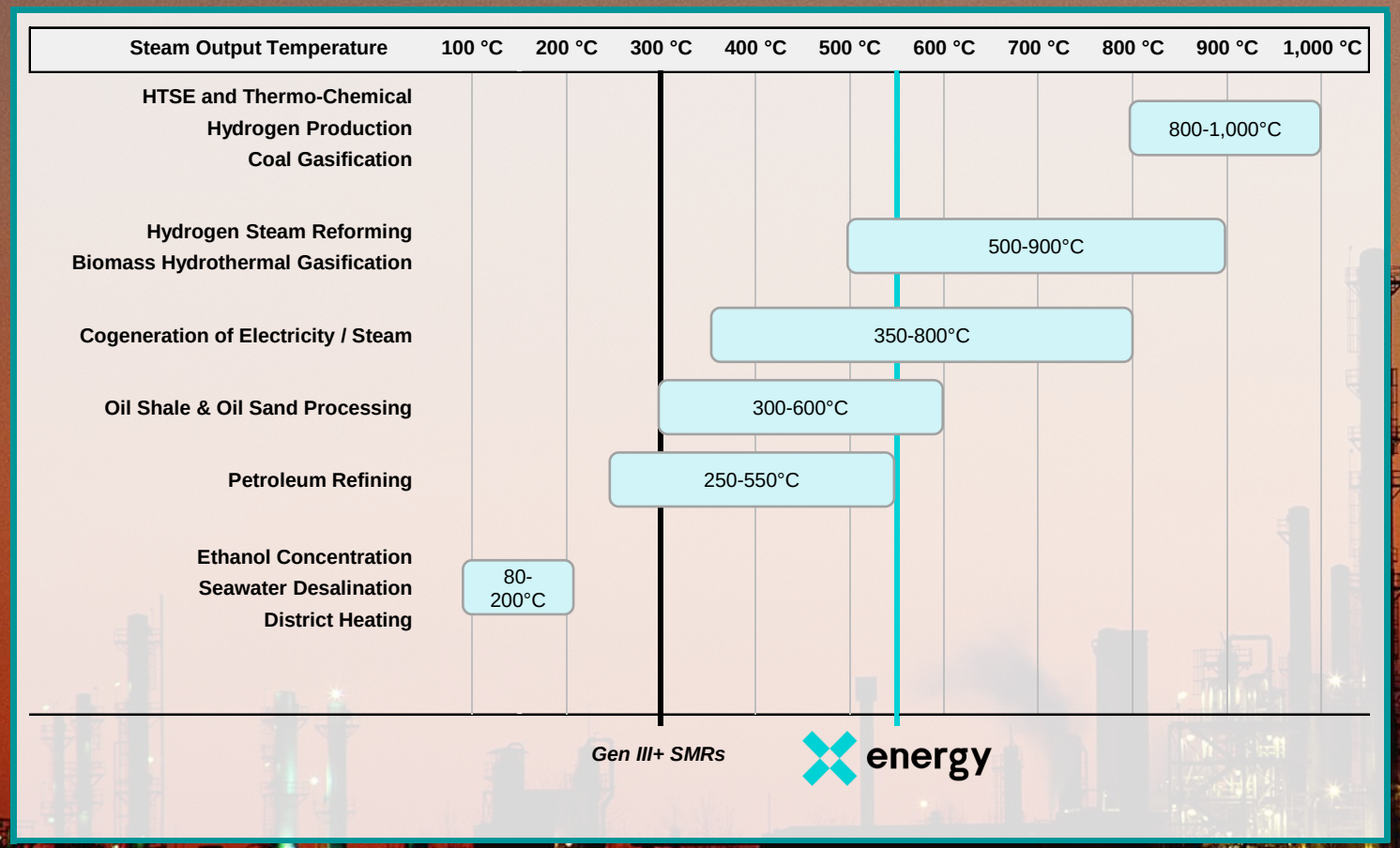
Clean Hydrogen Production

Critical 24/7 Data Center Power

24/7 Power for Remote Sites
Xe-1 Mobile

Load Following to Complement Renewable Use

X-energy's Thermal Output is Well Positioned to Satisfy Most Industrial Applications



"High Temperature Gas-Cooled Reactors have the most market potential for supplying industrial heat applications"

– BREAKTHROUGH INSTITUTE

Source: Steam output temperatures based on respective SMR technology and selected public company disclosure

X-energy's First Project Backed by $1.2 Billion ARDP Grant

X-energy's selection for the DOE's Advanced Reactor Demonstration Program represents a critical advantage over other competitors

ARDP to Support:

1. ***Design of the Xe-100***

2. ***Construction of the first fuel facility***

3. ***Commercialization of the first reactor***

What ARDP Selection Means to X-energy

In December 2020, X-energy was selected to receive $1.2bn in funding to deliver a first-of-a-kind commercial advanced nuclear plant and TRISO-X fuel fabrication facility

- ✓ **Recognition from the DOE as an advanced reactor technology of choice (one of two demonstration awards out of many applicants)**
- ✓ **Provides funding to support design, licensing, commercialization and construction of the first-of-a-kind reactor(1)**
- ✓ **Facilitates first customer deployment**
- ✓ **Strengthens DOE's support of the advancement of TRISO fuel**

In May 2020, the DOE announced the ARDP to accelerate the development of advanced nuclear reactors through cost-share partnerships, believing that advanced nuclear energy systems hold enormous potential to lower emissions, create new jobs and build a stronger economy

Note: Commercialization assumes regulatory approvals have been obtained to permit construction of the facility as projected. The regulatory process, including necessary NRC approvals and licensing, is a lengthy, complex process and projected timelines could vary materially from the actual time necessary to obtain all the required approvals. While there is some possibility of an expedited approval process for SMR technology, there is presently no clear path for expedited permitting

1) In November 2021, President Biden signed into law the Infrastructure Investment and Jobs Act, which included $2.5bn of appropriated funding for ARDP through 2025

X-energy and Dow Partner to Decarbonize Industrial Processes

On March 1, 2023, Dow and X-energy announced their entry into an agreement to build the Xe-100 under the ARDP

Pictured: Digital rendering of Dow's planned advanced nuclear facility in Seadrift, Texas

Pictured: Dow Chairman and CEO, Jim Fitterling. Click image for link to full CNBC interview

- Dow and X-energy have signed a joint development agreement ("JDA") and on May 11 announced that they intend to deliver the first advanced nuclear reactor at Dow's UCC Seadrift Operations manufacturing site ("Seadrift") in Texas by the end of the decade. The project is expected to decarbonize the manufacturing of specialty chemical products by providing process heat and power
  - Seadrift is Dow's 2nd largest facility in Texas and the site's power and steam needs match the anticipated capabilities of the Xe-100 – a key reason why the Xe-100 was selected
- The project will benefit from ARDP grant proceeds provided by the U.S. Department of Energy, as well as the incentives included in the Inflation Reduction Act
- The JDA is driven by Dow's corporate commitment to reduce its net annual carbon emissions by 5 million metric tons versus its 2020 baseline (15% reduction)
  - Proposed Seadrift site emission reductions of 440,000 MT CO2e / year would set a strong precedent for other industrial decarbonization use cases
- The JDA supports up to $50mm in engineering work, including the preparation and submission of a Construction Permit application to the NRC
  - Dow and X-energy expect construction to begin in 2026 and to be completed by the end of the decade

The collaboration with X-energy and the DOE will serve as a leading example of how the industrial sector can safely, effectively and affordably decarbonize."* – Jim Fitterling, *Dow Chairman and CEO

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Best-in-Class First Customers Doing Substantial Work

X-energy has several premier customers actively spending time and money to deploy first projects by 2030-2032

Seadrift, Texas
2030 COD
Heat and Power
320 MW

Dow and X-energy plan to deliver the first advanced nuclear reactor at Dow's UCC Seadrift site to decarbonize the manufacturing of specialty chemical products by providing process heat and power

Washington State
2031 COD
Power
320-960 MW

In July 2023, Energy Northwest and X-energy signed a $70mm joint development agreement ("JDA") for up to 12 Xe-100 reactors (or up to 960 MW) in central Washington

Ontario, Canada
2032 COD
Heat and Power
320 MW

OPG and X-energy signed a framework agreement to deploy Xe-100 reactors for industrial applications in Canada. OPG has made multiple investments into X-energy and holds a board seat

Washington State
2032 COD
Power
320 MW

Grant County is seeking new sources of reliable, affordable and emissions-free electricity to support its rapidly growing population, which has outpaced the U.S. annual growth rate 28 out of the last 30 years, and continued strong demand from commercial customers like data centers

Confidential Fortune 500 Steel Company

Midwestern USA
2031-2032 COD
Power
480 MW

A confidential Fortune 500 steel company is working with X-energy and actively spending dollars on feasibility and pre-characterization study services with the goal of decarbonizing steel production

Confidential Utility

USA
2032 COD
Power
320 MW

A confidential utility is working with X-energy to replace its shrinking coal generation fleet with Xe-100 reactors. Its service territory extends across three states