



# Unlocking Electricity Transmission Growth Using High Temperature Superconductors

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**Fossil fuel  
generation...**



**is being replaced  
by renewables...**



**and electrification  
is growing fast.**



Photo Source: Find Energy, <https://findenergy.com/top-100-dirtiest-power-plants-in-the-united-states/> (accessed 3 June 2022)

Photo Source: Dynamic Ratings, <https://www.dynamicratings.com/portfolios/renewable-energy/solar-and-wind-energy-aerial-view-2/> (accessed 3 June 2022)

Source: Jeff Gritchen, Orange County Register/SCNG.



# Building new transmission is exceptionally difficult...

**2,000 GW**

New renewables generation waiting to connect to power grids across the country.

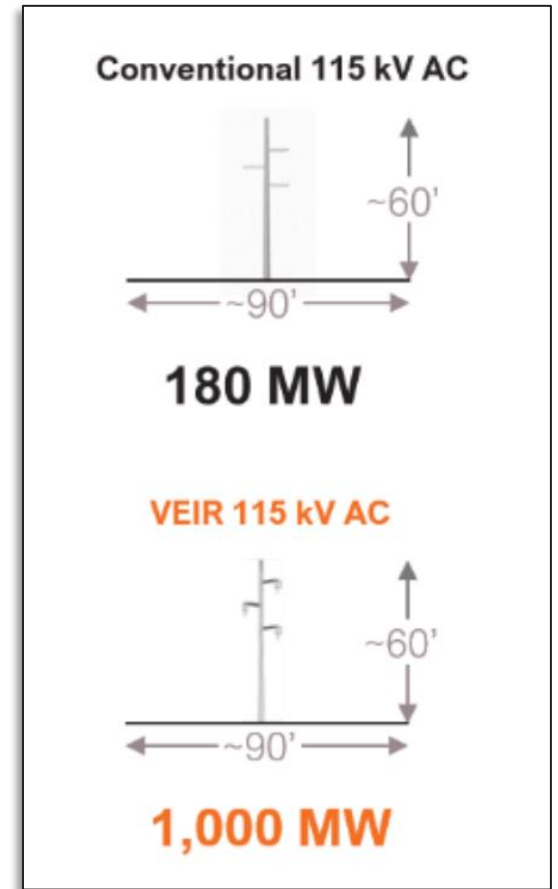
**5 Years**

On average for new generators to move from application to commercial operation.

**2x**

The rate of transmission construction must double that of the last decade.

# VEIR Transmission Solution Significantly Increase Power Delivery within a Corridor



VEIR moves 5-10x the power of traditional conductors at a given voltage and can reduce transmission's footprint by nearly half

# Current Situation



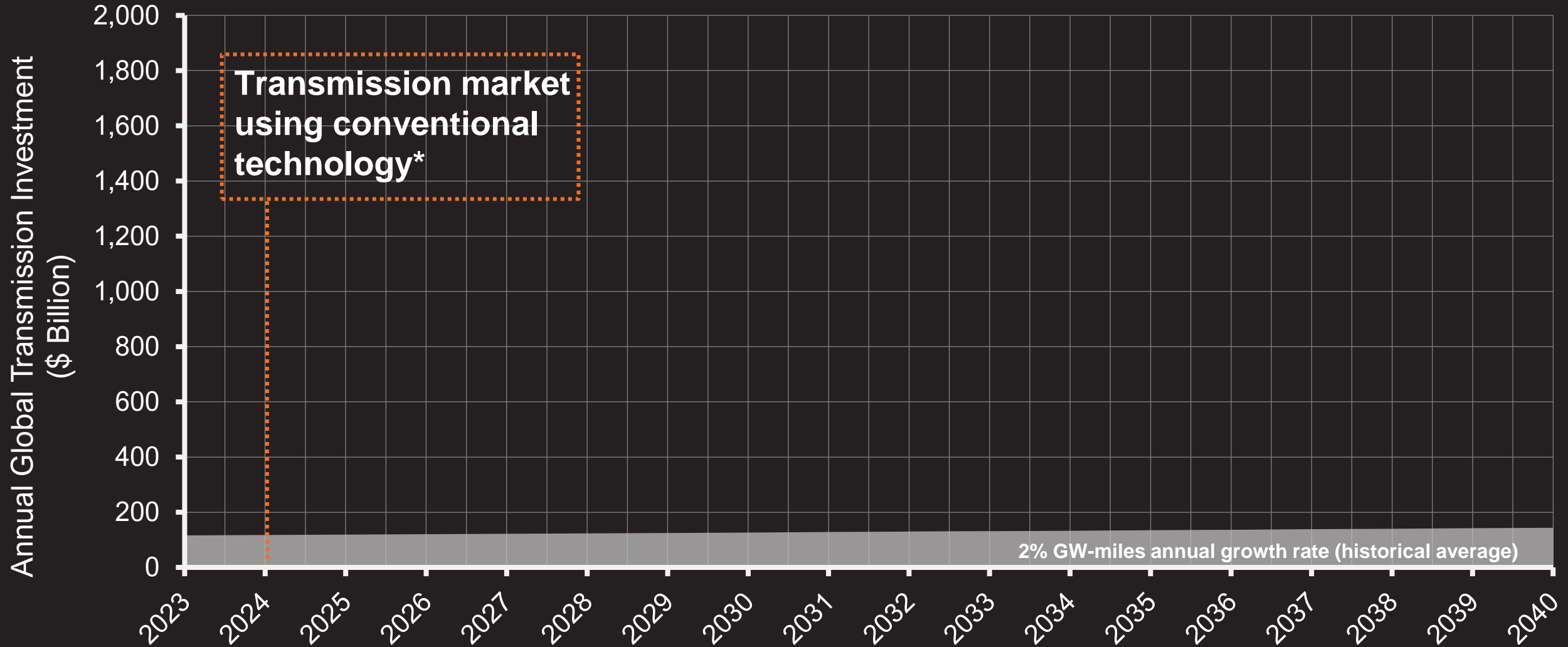
# Conventional Upgrade



# VEIR Upgrade



# The Transmission Market Needs to Grower Faster

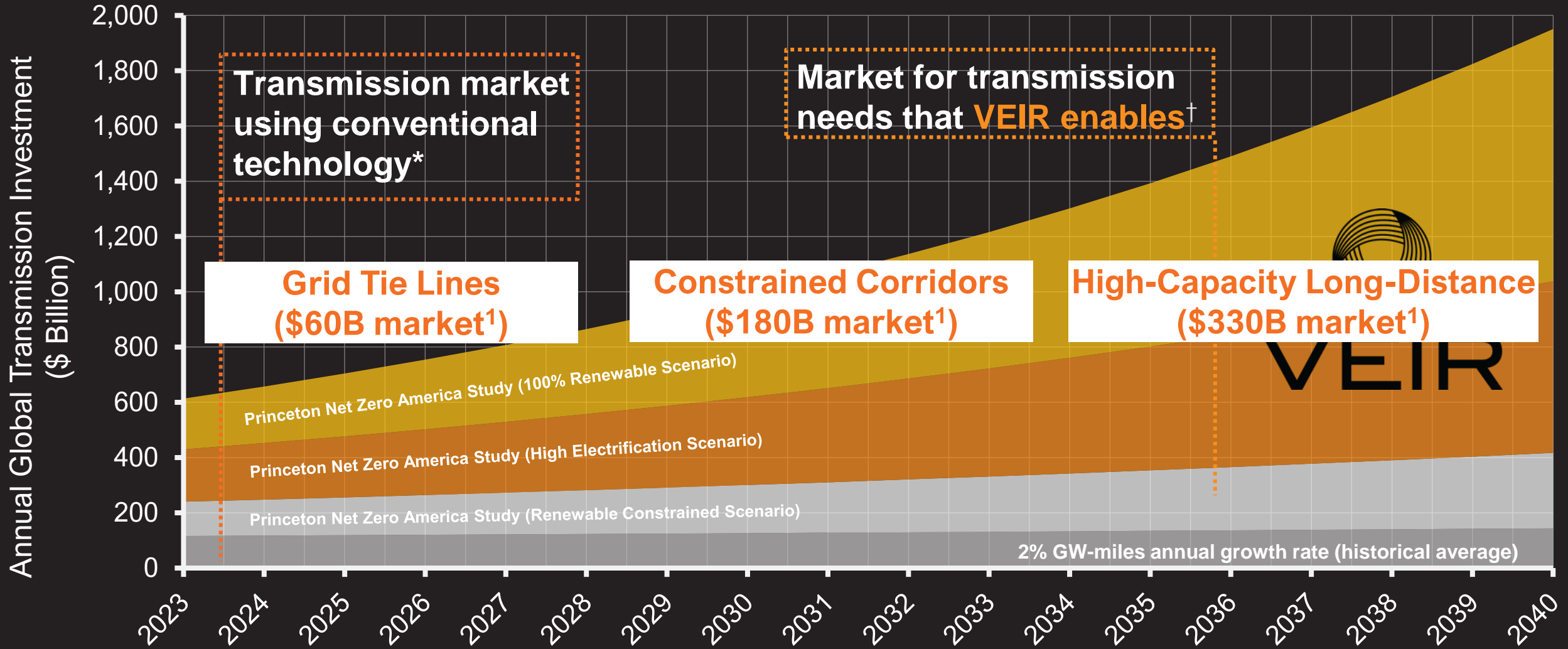


\* Based on a linear extrapolation of historical transmission investment in C Three Group's transmission project database and scaled up to reflect the global market. We assume global investment is 5 times larger than North American investment, consistent with the IEA's estimate that annual global transmission investment was \$90 billion in 2019, exactly 5 times larger than the \$18 billion investment in North America in 2019. See: IEA, "Annual investment in electricity networks 2019-2030 in the Stated Policies Scenario", available at <https://www.iea.org/data-and-statistics/charts/annual-investment-in-electricity-networks-2019-2030-in-the-stated-policies-scenario> (accessed 19 August 2022).

† Calculated from the incremental transmission capacity necessary to achieve net zero carbon emissions at lowest cost, as reported in the Princeton Net Zero America Study's E+ RE- Scenario and scaled up to reflect the global market. We assume an average project unit cost of \$10,000/MW-mile.



# VEIR enables market to grow 4X today to 10X in 2040



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# VEIR Product Development Roadmap

VEIR is targeting first deployment of Product 1 in 2027

## Testbed Development

Cryogenics testbed enables rapid subsystem prototyping and testing

## Subsystem Design & Validation

Subsystem prototypes are iteratively developed and tested

## Integrated Demonstration

An integrated, cryogenic demonstration proves the viability of VEIR's novel cooling approach

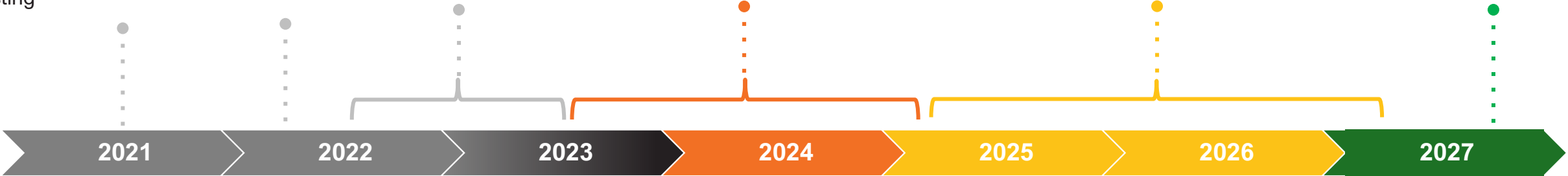
## Product Design & Development

Design, fabrication and testing of overhead, high-power product components

## Product Testing & Manufacturing

3rd-party high voltage and fault testing of VEIR's superconducting overhead line

## Energize 1st Project



## Letters of Intent & Use Cases

Soliciting and engaging with early adopters. Signing letters of intent.

## Pilot and Demonstration Projects

Executing, building, and energizing first projects, ranging from 60 MW to 200+ MW

# VEIR's technology has been demonstrated

## Demonstration Features:

- Outdoor, overhead conductor
- 100 ft span
- 34.5 kV wood poles
- VEIR's innovative cooling system



## VEIR's Woburn, MA Demonstration Facility

Builds upon VEIR's indoor demonstration, which carried 4,000 Amps of current

# VEIR Leadership

VEIR is building an interdisciplinary team with backgrounds in cryogenics, applied superconductivity, mechanical engineering, power system engineering, transmission project development, transmission planning, and electricity policy.



**Tim Heidel**

CEO & Co-Founder



**Steve Ashworth**

Co-Founder & Lead Scientific Consultant



**Dan Leff**

Executive Chair



**Kevin Dunn**

Chief Commercial Officer



**Emre Can Kara**

VP of Analytics



**Jessica Harrison**

Executive Director of Growth



**Craig Weich**

Operating Advisor



**Lisa Wood**

Strategic Advisor



**Max Luke**

Director, Business Development & Regulatory Affairs



**Sylvia Smullin**

Head of R&D





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