

STRATEGY

# Gearing up for the global energy transformation





**We strive for a sustainable future by developing value-adding technology for people**

## FROM DTU'S STRATEGY

DTU is a university where people think, talk, and work together between academic disciplines and cultures to create a sustainable future. Our doors are open to our colleagues and students— and to society at large.

DTU is a globally oriented elite university with unique facilities and strong educational and research environments. We are the university of innovation.

We offer Europe's best engineering education where students can realize their full potential and master technologies for the benefit of people and society.

In response to the global climate challenge and the accelerating depletion of the Earth's resources, we strive for a sustainable future by developing technology for people.

We lead the drive for sustainable change and realize the opportunities offered by digitalization, through innovation and cutting-edge research for the benefit of society.



# Strategic narrative

The motivation and ambition of our strategy are captured by the phrase *“Gearing up for the global energy transformation.”*

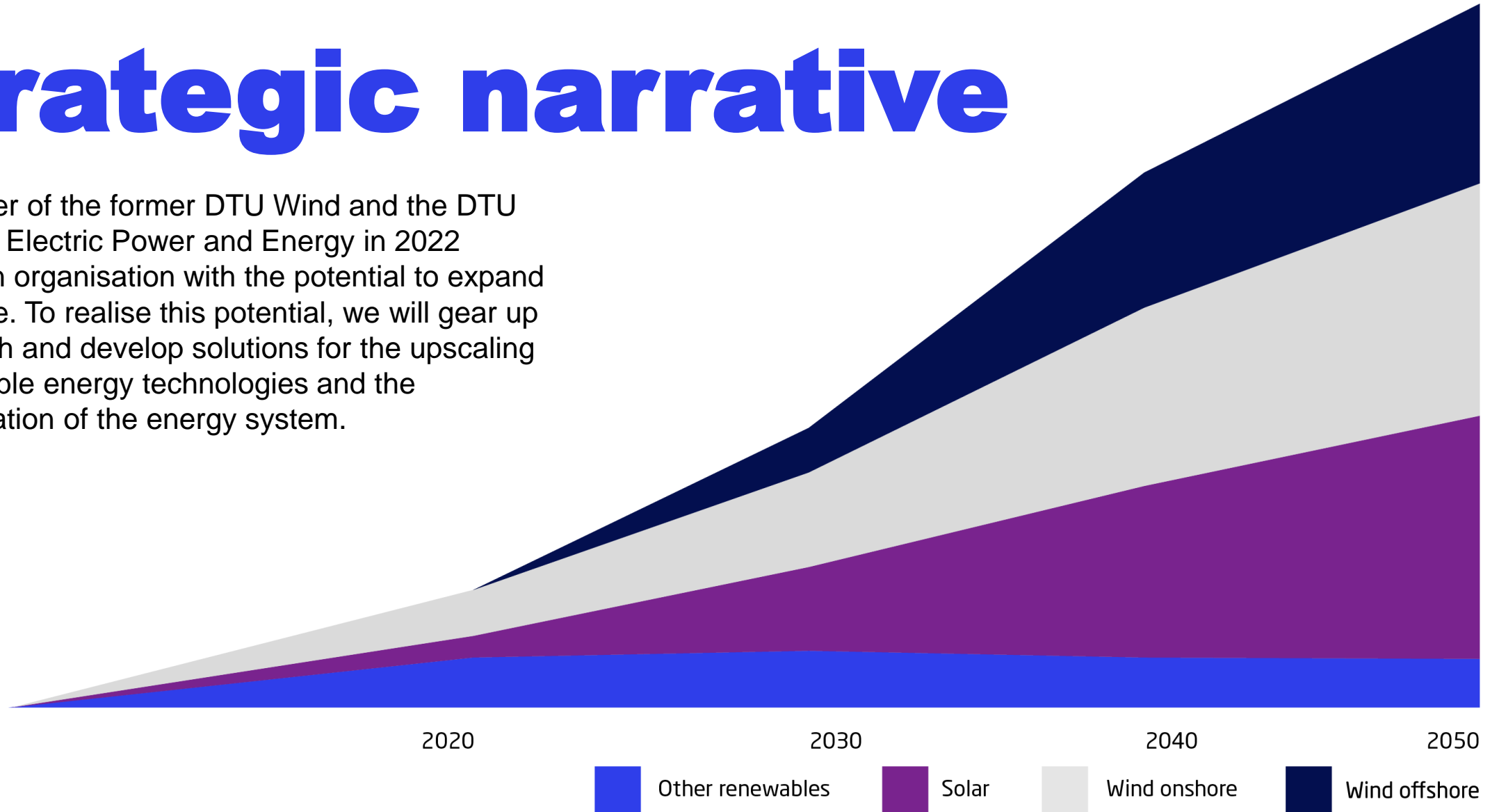
It recognises the department’s global legacy of contributions to the energy sector and its key role in supporting the shift towards a renewable energy system. At the same time, it also acknowledges the need for the department to adapt to the transformation of the energy sector.



**“Gearing up for the global energy transformation”**

# Strategic narrative

The merger of the former DTU Wind and the DTU Centre for Electric Power and Energy in 2022 created an organisation with the potential to expand and evolve. To realise this potential, we will gear up to research and develop solutions for the upscaling of renewable energy technologies and the transformation of the energy system.





# Our vision

Research is fundamental in achieving national and international goals for a decarbonised society by 2050. We believe the development of technologies, the systems that integrate them, the rules and regulations that govern them, and the action of people that inhabit society are all part of the solution. From a core of engineering, our research spans these areas to contribute to our vision of

**a society fully powered by renewables with wind as its backbone.**



VISION STATEMENT

**A society fully powered by  
renewables with wind as its  
backbone**





# Our mission

To achieve our vision of a society fully powered by renewables, the department will focus efforts and investments on projects with the highest impact potential, addressing bottlenecks towards a 100% renewable-based energy system.

Combined with our commitment to support Danish and European leadership in wind power, this defines our mission to:

**Lead by scientific excellence and impact-driven research that enables a sustainable, large-scale deployment of wind energy and the development of an integrated and resilient energy system.**



A low-angle, close-up photograph of a wind turbine's tower and nacelle against a clear blue sky. The tower is a dark, vertical pole that tapers slightly. The nacelle is a dark, cylindrical structure at the top of the tower. Three blades are visible, extending from the nacelle. The blades are dark and appear to be in motion, with some motion blur. The sky is a uniform, clear blue.

MISSION STATEMENT

**To lead by scientific excellence and impact-driven research that enables a sustainable, large-scale deployment of wind energy and the development of an integrated and resilient energy system**



# Strategic aspiration

DTU Wind and Energy Systems builds on a legacy of being a preferred partner to the energy sector and the academic community in developing green technologies.

Our aim is to develop our role as **the go-to global knowledge partner for tomorrow's wind energy and energy systems** in core competence areas.



# Strategic aspiration

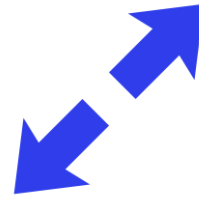
This strategic aspiration builds on five goals and capabilities:



Our research is **guided by impact**, focused on addressing key barriers and developing opportunities to achieve a 100% renewable energy system and support continued Danish and European leadership in wind energy.



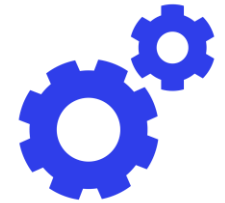
We provide a **fertile environment for breakthrough research** based on an academic culture of excellence and access to state-of-the-art facilities.



We lead **large-scale trend-setting projects** with world-class partners to set the standards for new developments in the energy sector.



We **grow and develop our department by building teams** that can attract the best minds to work together across scientific disciplines to offer unique integrated solutions to partners.



We **develop our organisational capacity** and professionalism across the management of facilities, tools, data, and people to fully unlock the powerful synergies.



OUR GUIDING STRATEGIC ASPIRATION

**The go-to global knowledge partner for tomorrow's wind energy technology and energy system.**



# The strategy

**Strategic narrative**  
Gearing up for the global energy transformation.

The future we envision

## Vision

A society fully powered by renewables with wind as its backbone.

What our contribution to the vision is.

## Mission

To lead by scientific excellence and impact-driven research that enables the sustainable, massive deployment of wind energy and the development of an integrated and resilient energy system.

Who we are, while the vision is being realised.

## Guiding strategic aspiration

The go-to global knowledge partner for tomorrow's wind energy technology and energy system.

Challenges that guide our work and activities.

Advancing the next generation of wind energy.

Designing a resilient, renewable-based energy system.

Enabling an urgent, sustainable, and fair energy transition.

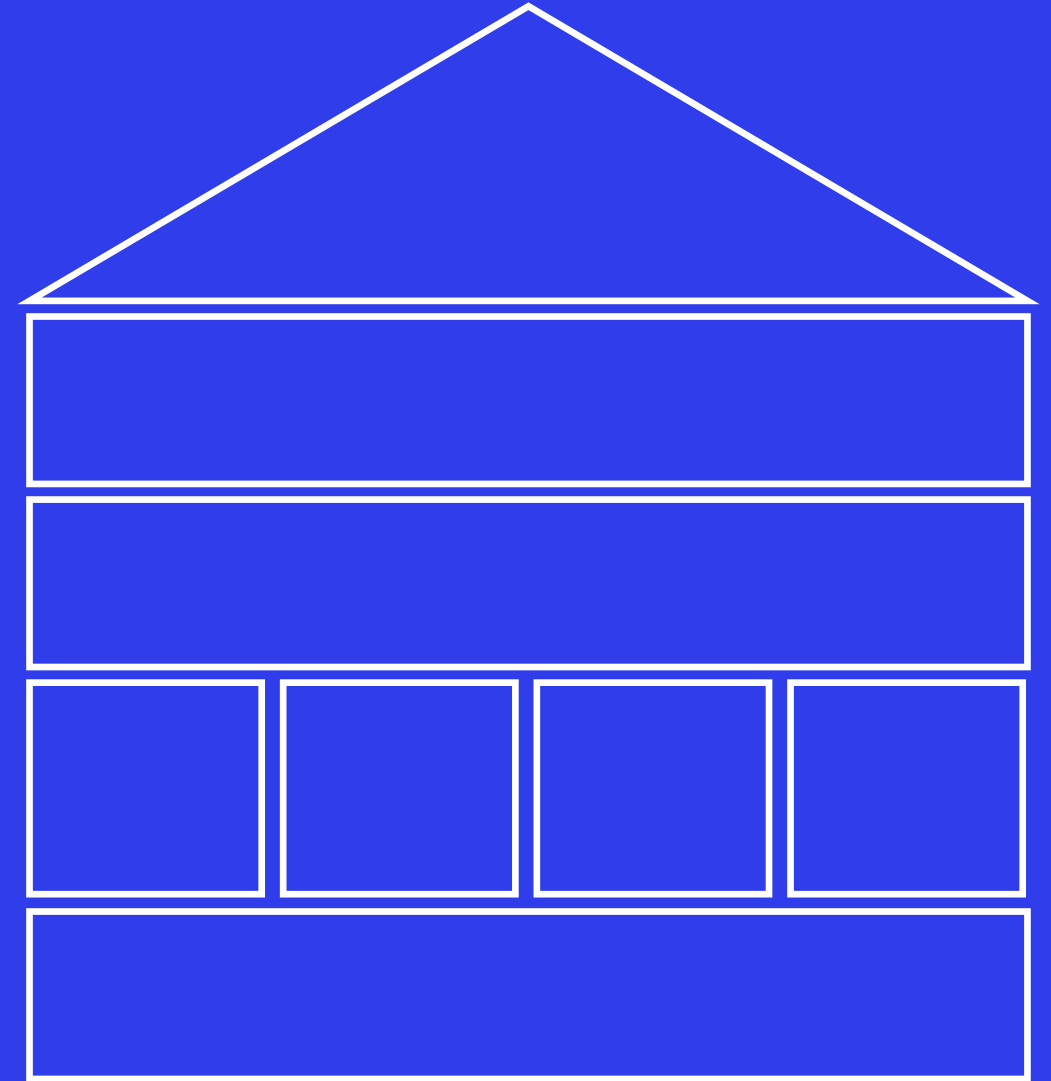
Educate tomorrow's technology leaders in sustainable energy.

What structures are in place to reinforce the strategy (next phase).

**Values, management and governance.**

# Four key challenges

To implement this strategy, we have pinpointed four critical challenges in research and education that our organisation is actively addressing to create a positive impact during this strategic period.



# Advancing the next generation of wind energy

As the field of wind energy evolves, so too do the opportunities for DTU Wind and Energy Systems to make a significant impact. The next generation of wind energy involves massive deployment with new requirements for sustainability, cost reduction, operational efficiency, and performance optimisation. We are committed to leading the advancement of this next generation of wind energy.

Environmental conditions (Wind, waves, etc.)	Cost- and performance optimization	
Future technologies: Scaling vs. consolidation	Assets management optimization	Large volume implementation and industrialization
Supply chain optimization	Risk management	Design and operation of wind farms and wind farm clusters



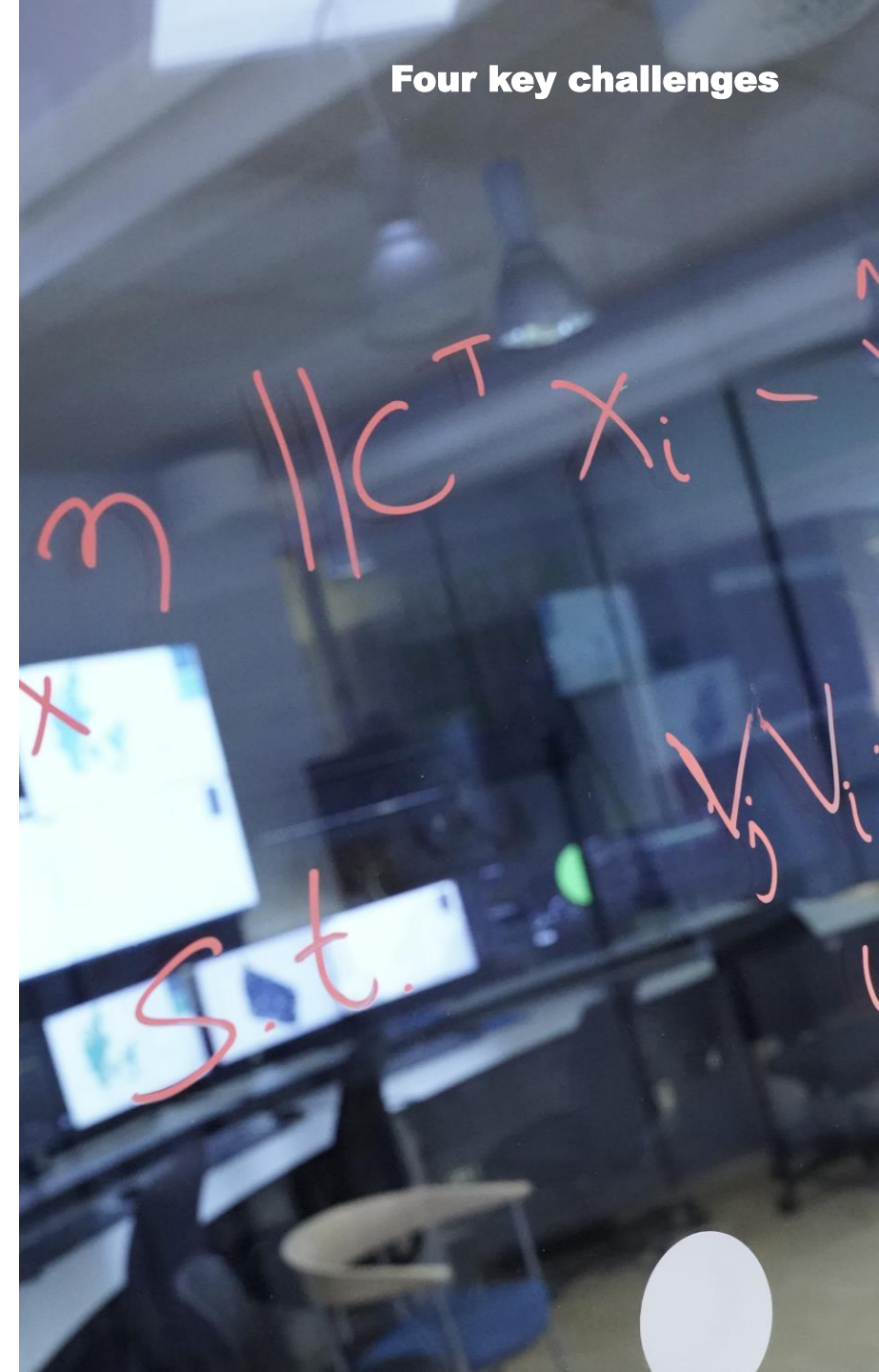


# Designing a resilient, renewable-based energy system

A society fully powered by wind and other renewables requires a fundamental redesign of the energy system as we know it. Security and resilience must be more thoroughly addressed in a system characterised by electrification, massive renewables, efficient markets, and innovative digital technologies. Therefore, we will lead society's effort towards a future integrated, flexible, and resilient energy system based on renewables.

Local flexibility solutions	Cyber physical security	Large-scale Power-to-X
A converter-based power system	Massive offshore energy systems and hybrids	Data, AI and advanced computation

Four key challenges

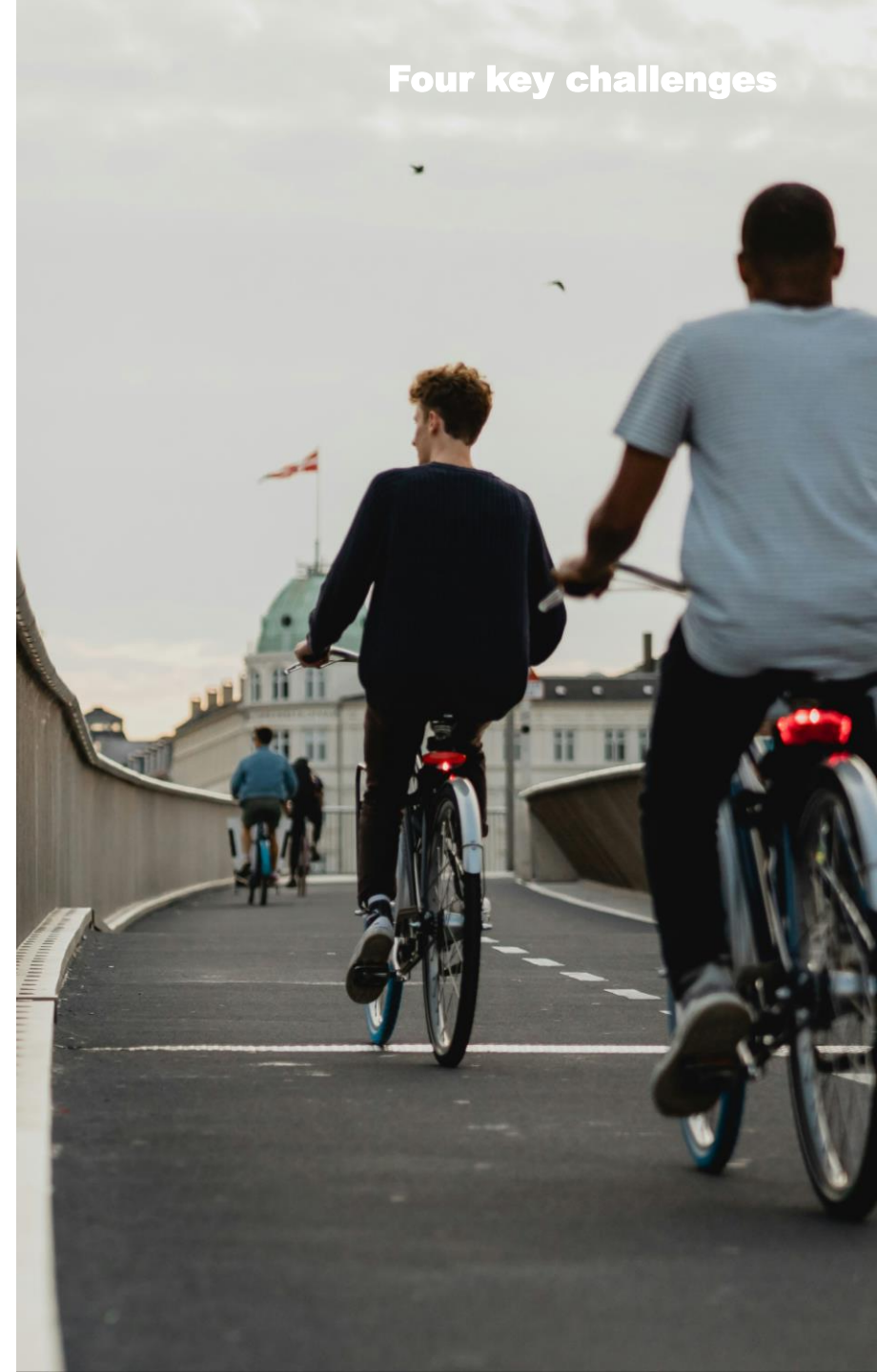


# Enabling a fast and fair, sustainable energy transition

The energy transition relies on more than overcoming technological hurdles. To accelerate the shift to a society fully powered by wind and other renewables, we must achieve breakthroughs in public discourse, policy, market designs, and other socioeconomic enablers. We are committed to scientific excellence in these critical areas to enable a fair energy transition.

Resource assessments and forecasting	Data and AI-based systems optimisation	
Technology impact assessment	Business models, investment & financing	Societal engagement and people empowerment
Sustainability analysis	Policy design & market architecture	Environmental impact

Four key challenges



# Educating tomorrow's technology leaders in renewable energy systems

Technology leaders are catalysts for a society fully powered by wind and other renewables. As a globally leading university, we take responsibility for educating and preparing individuals to spearhead this change. We are committed to fostering tomorrow's technology leaders who will research, innovate, inspire, and lead the way to a clean and resilient energy future.

High quality teaching

Attractive, Bsc, Msc and PhD-programmes

Education in digital and digitalization skills

Lifelong learning, training and certification

Research-integrated study environment

Energy transition engineers for Denmark

