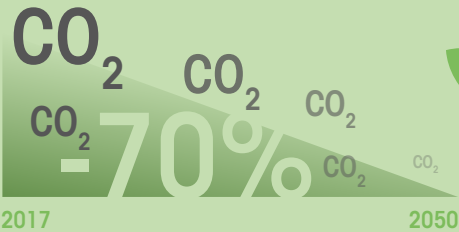


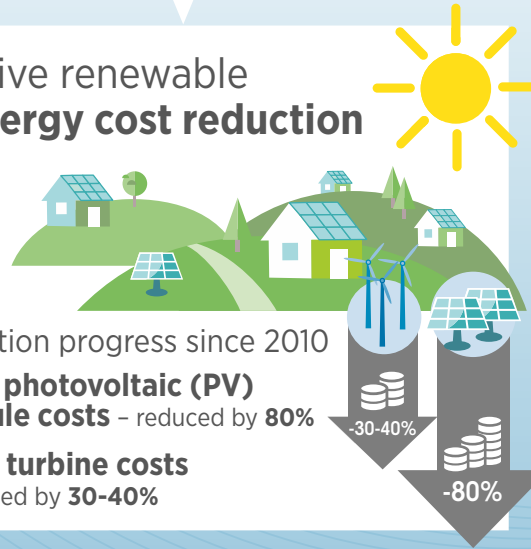
# Innovation to Decarbonise the Energy Sector

## Goals



- Reduce energy-related CO<sub>2</sub> emissions by nearly 70% by 2050
- **Keep global temperature rise well below 2 degrees**

## 1 Drive renewable energy cost reduction



- Innovation progress since 2010
  - **Solar photovoltaic (PV) module costs** – reduced by **80%**
  - **Wind turbine costs** – reduced by **30-40%**

## 2 Enhance technology performance

### • Today's renewable energy technologies:

- Need to grow renewable energy share 1.2% yearly to reach 2050 climate goals
- Could provide 2/3 of the world's primary energy supply



### • **What about the remaining 1/3?**

## 3 Integrate high shares of renewable energy in power systems



- **Enabling** technologies
- New ways to **operate** systems
- Innovative **business** models + **market** designs

## 4 Create new breakthroughs for end-use sectors

### • Find affordable, scalable solutions

#### ◦ Develop low-carbon technologies for:

- aviation
- heavy industry
- road transport
- shipping



## Action needed now:



- **Governments**
  - encourage private sector innovation
- **Developing new technologies**
  - requires decades
  - **R&D → demonstration → market**
- **Innovation goes beyond technology**
  - creating new businesses; system integration; wealth creation