وزارة الطاقة والبنية التحتية
MINISTRY OF ENERGY & INFRASTRUCTURE

Updated
UAE Energy Strategy 2050

July 2023

An ambitious journey

The climate action journey in the energy sector to reach net zero by 2050

2017

Launch of the UAE Energy Strategy 2050, a quantum leap in the UAE's energy sector

2020

COVID-19 pandemic

2020

Operation of the first nuclear power reactor, while the second and third reactors came online in 2022 and 2023, respectively

2021

The launch of the UAE Net Zero by 2050 Strategic Initiative

2021

Launch of the UAE Hydrogen Leadership Roadmap at COP26

2022

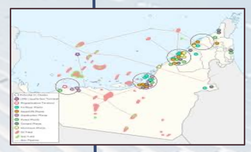
Converting the Hassyan Power complex to produce electricity from natural gas, instead of clean coal

2022

Starting the update of the UAE Energy Strategy 2050

2022

Starting the development of the National Hydrogen Strategy 2050



2023

Launch of

2023

Declaring 2023 as the Year of Sustainability by the UAE President, HH Sheikh Mohamed bin Zayed Al Nahyan

2023

Hosting COP28

2050

Achieve Net Zero by 2050

2071

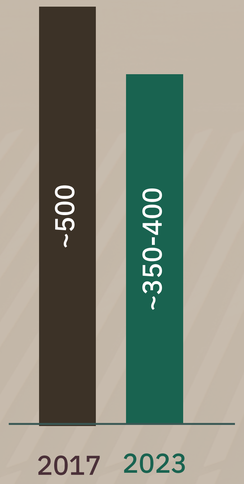
UAE Centenn 2071

Major changes made in the updated version of the UAE Energy Strategy 2050

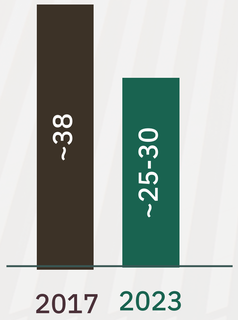
Targets for the year 2030

Capital investment (in AED billion)

Total cost of generation (in AED billion)

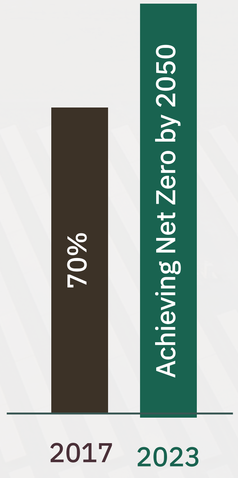


Unit cost of generation (Fils/kWh)



Energy efficiency

Emissions reduction



Reliability and security of power supply and resilience of systems

2017

General focus is on the transformation of the energy sector.

2023

Focus is on specific enablers such as policies and regulatory, technical, and technological tools to facilitate transition in the power sector and achieve net zero by 2050.

Economy | investment | Environment | Power supply security | Reliability | Flexibility | cost reasonableness | Sustainability | the growth

Energy Sector

UAE’s Grid Emission Factor Compared to Global Average

kWh

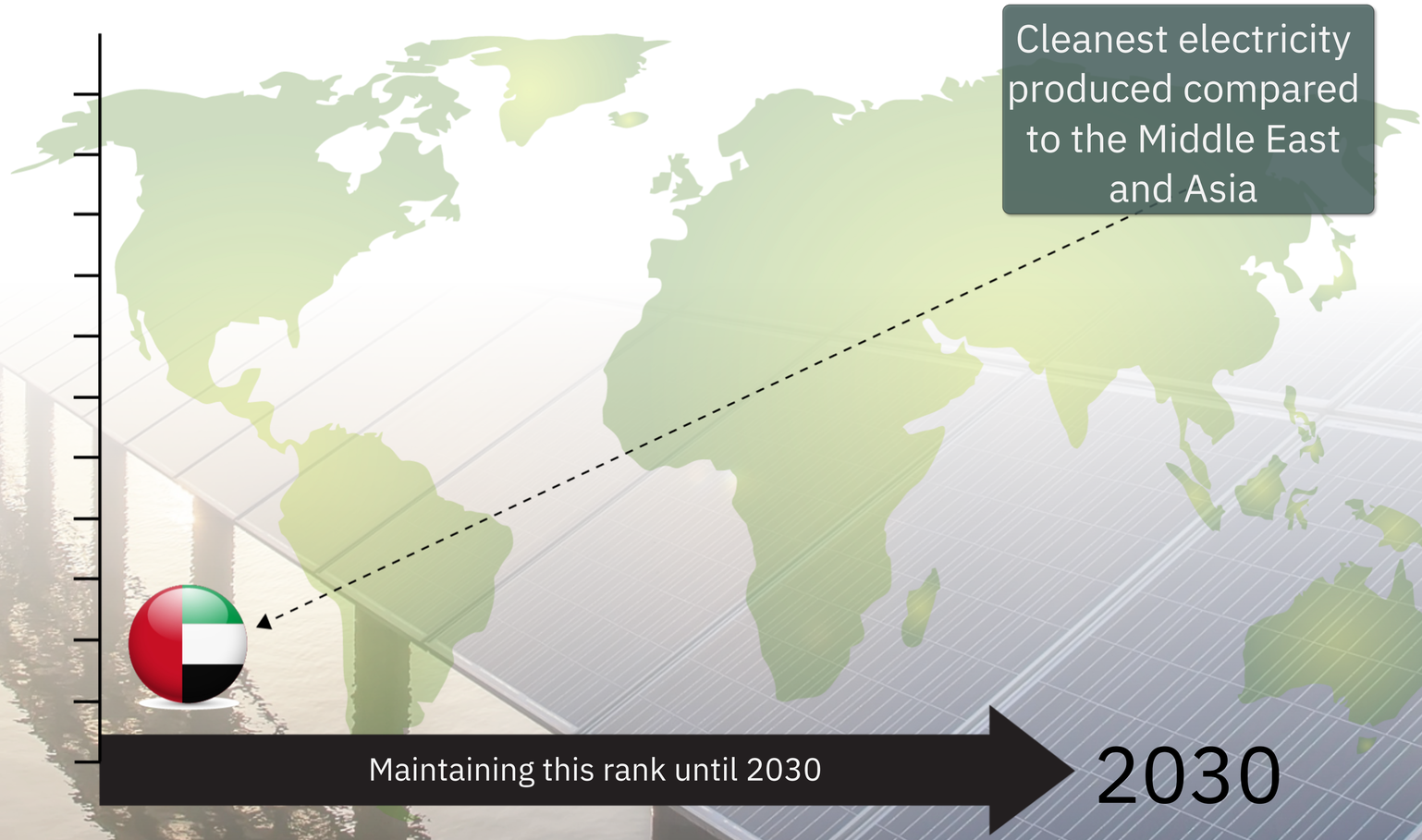
0. 556 kgCO2

2021

kWh

0.270 kgCO2

2030

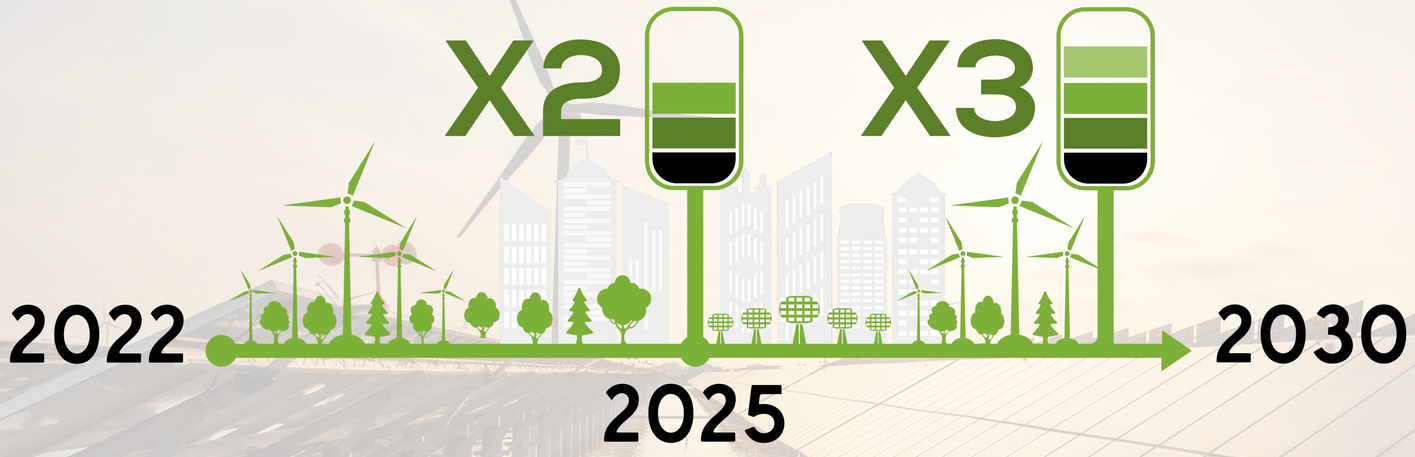


* The UAE generates 10.57% less emissions than the Middle East and Asia average and 9.5% less than the global average

*based on 2021 data

Renewable Energy

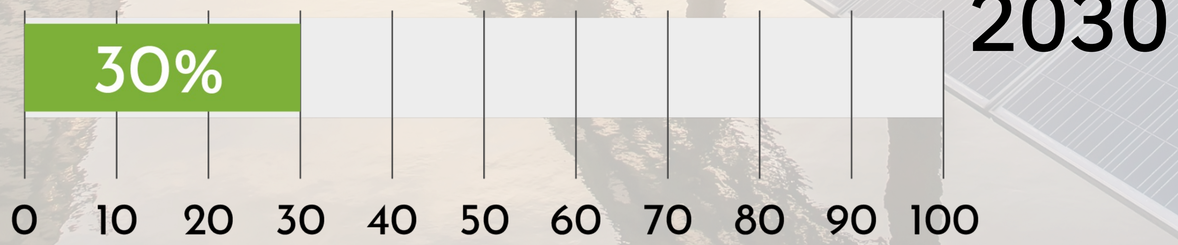
Triple the capacity of renewable energy



Energy Transition Pillar

Climbing eight positions

Increase the share of installed clean energy capacity

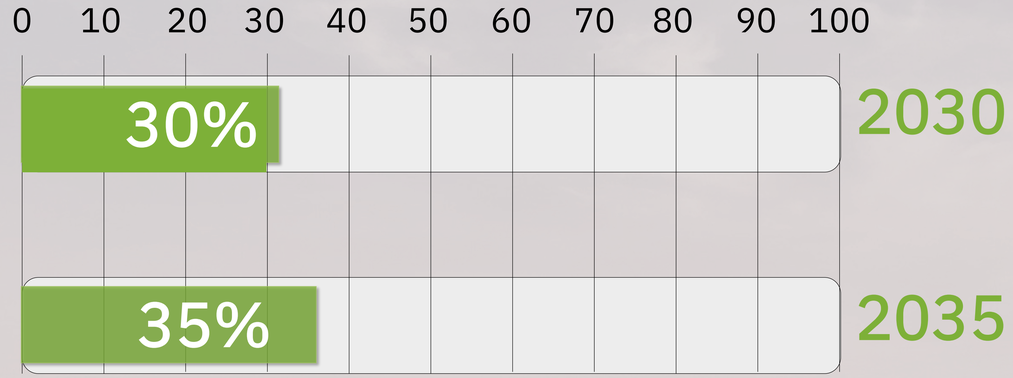


Energy transition rank

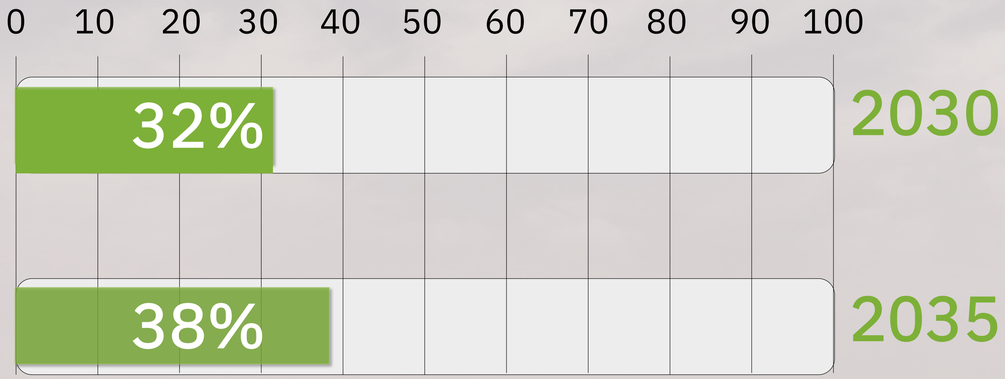
2022	Rank	2023	Country	Score
13	↑	1	Iceland	5.42
10	↑	**2**	**UAE**	**5.31**
25	↑	3	Norway	5.09
18	↑	4	Sweden	4.94
8	↑	5	Kuwait	4.72
20	↑	6	Finland	4.70
16	↑	7	Uruguay	4.48
12	↑	8	KSA	4.46
24	↑	9	Brazil	4.44
8	↓	10	South Korea	4.30

Clean Energy

Contribution of installed clean energy capacity



Contribution of clean energy in generation



NET ZERO 2050

Strategy implementation phases:

Develop updated plans of 4 phases of energy sector developments

Phase 1

2023 → 2026

Completion of a study of the main potentials for the transformation of the energy sector

Phase 2

2027 → 2035

Start implementing strategic projects to enable the transformation of the energy sector

Phase 3

2036 → 2049

Accelerated implementation of ambitious goals

Phase 4

→ 2050

Achieving Net Zero in the energy and water sector

Energy Efficiency

Increase efficiency of energy and water consumption in highly intensive sectors in the UAE, in line with the objectives of the National Water and Energy Demand Management Program

42%- 45%

40%

Reduction in energy consumption from energy intensive sectors in the UAE

51%

Reduction in water consumption in the building and agricultural sectors in the UAE

≈mtco166

Reduction in carbon emissions in carbon intensive sectors in the UAE

AED 226 B

Financial savings from lower consumption of energy and water by implementing dedicated initiatives in highly intensive sectors and achieving targets compared to BAU

→ By 2050

Raising the level of behavioral awareness of sustainable energy and water consumption

95%

Improvement in air quality

50%

Recycling construction waste

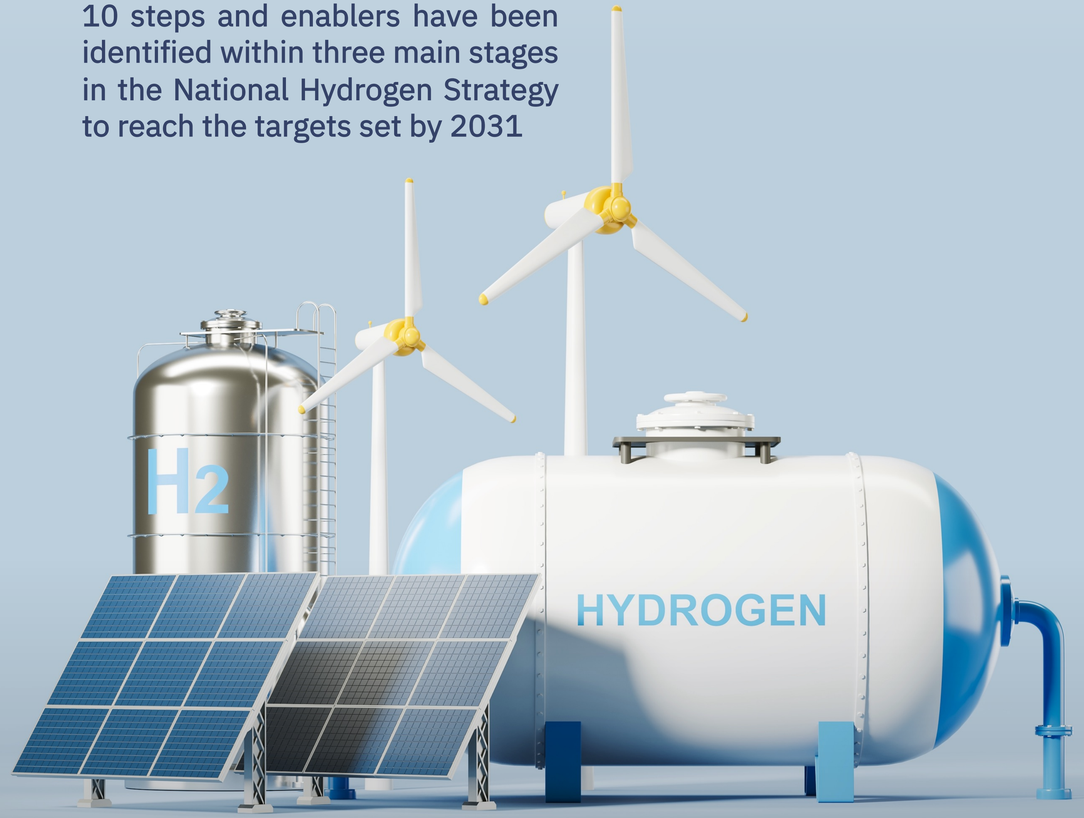
Implementing latest building systems and supporting policies and legislation to integrate the principles of sustainability in highly intensive sectors in the UAE

Enablers

- UAE Energy Strategy 2050
- National Strategy for Wellbeing 2031
- Circular Economy Policy 2031
- Net Zero Strategy 2050

We aspire for the UAE to become among the leading countries **for hydrogen production by 2031** In line with the ‘We the UAE 2031’ vision

10 steps and enablers have been identified within three main stages in the National Hydrogen Strategy to reach the targets set by 2031



Develop a resilient hydrogen supply chain to support the growth of the local industry

Consolidate the UAE’s role as a leading global producer and supplier of low-carbon hydrogen

Promote innovation in industrial zones in the UAE

Establish a robust hydrogen economy that can support the country’s nationwide decarbonization efforts

2031 Targets		2050 Targets
25%	Reduce emissions in hard-to-abate sectors by	100%
1.4 MTPA	Hydrogen production per year	15 MTPA
Establishing a hydrogen R&D center	Hydrogen center	A globally recognized innovation center for hydrogen
2 hydrogen oases	Establishing several hydrogen oases in the UAE	5 hydrogen oases

10 steps and enablers have been identified within three main stages in the National Hydrogen Strategy to reach the targets set by 2031.

Global Collaboration

Building international partnerships and creating investment opportunities to drive the global transition to a hydrogen economy.

Resources and Assets

Leveraging natural resources and existing assets to competitively lead future energy markets.

Climate, Safety and Social Driver

Guiding society to embrace hydrogen and unlocking the common good as a results of global carbon mitigation.

Enabling Infrastructure

Creating the infrastructure necessary to link production with demand, accelerating hydrogen availability and utilization.

Research and Innovation

Incubating and accelerating next generation hydrogen technology developments across the value chain.

Policy, Regulation and Standards

Establishing the legislative mechanisms to support the low-carbon hydrogen transition, including hydrogen certification and guarantees of origin.

Finance and Investments

Creating an attractive investment environment to support the hydrogen transition, as well as developing green finance mechanisms domestically.

Industry Development and Demand Activation

Providing the certainty, predictability and confidence industry needs to transition to hydrogen.

Sustainable Commercial and Economic Models

Achieving and maintaining globally competitive hydrogen pricing through a long-term market driven support mechanism.

Skills and Education

Nurturing and growing a highly skilled workforce to drive forward the transition to hydrogen.

Strategy implementation phases:

The National Hydrogen Strategy is going through three main phases to implement the ten enablers:

Phase 1

Promote and support the project

Building global international companies
Sustainable business and economic models
Industry development and activation

Phase 2

Comprehensive empowerment of the project

Education and skills development
Research and innovation
Public awareness and education

Phase3

Develop frameworks and guidelines

Preparing policies and standards
Allocation of financing and investments
Allocation of resources and assets enabling infrastructure

Green Mobility

Number od current and targeted chargers as per the objectives of the UAE DSM Program for the transport sector

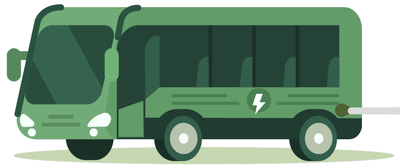
Number of chargers installed in 2022-2023

- End-2023: 879
- End-2050: 30K

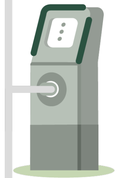
Share of EV and hybrid vehicles

2023	2025	2030	2035	2040	2045	2050
4%	5%	13%	22%	23%	43%	53%

Share of electric and hybrid buses



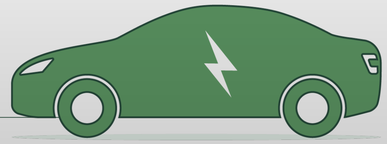
2023	2025	2030	2035	2040	2045	2050
3.2%	6%	14%	24%	36%	46%	60%



Number of hybrid vehicles

2025	2030	2035	2050
226,198	320,167	410,983	731,959

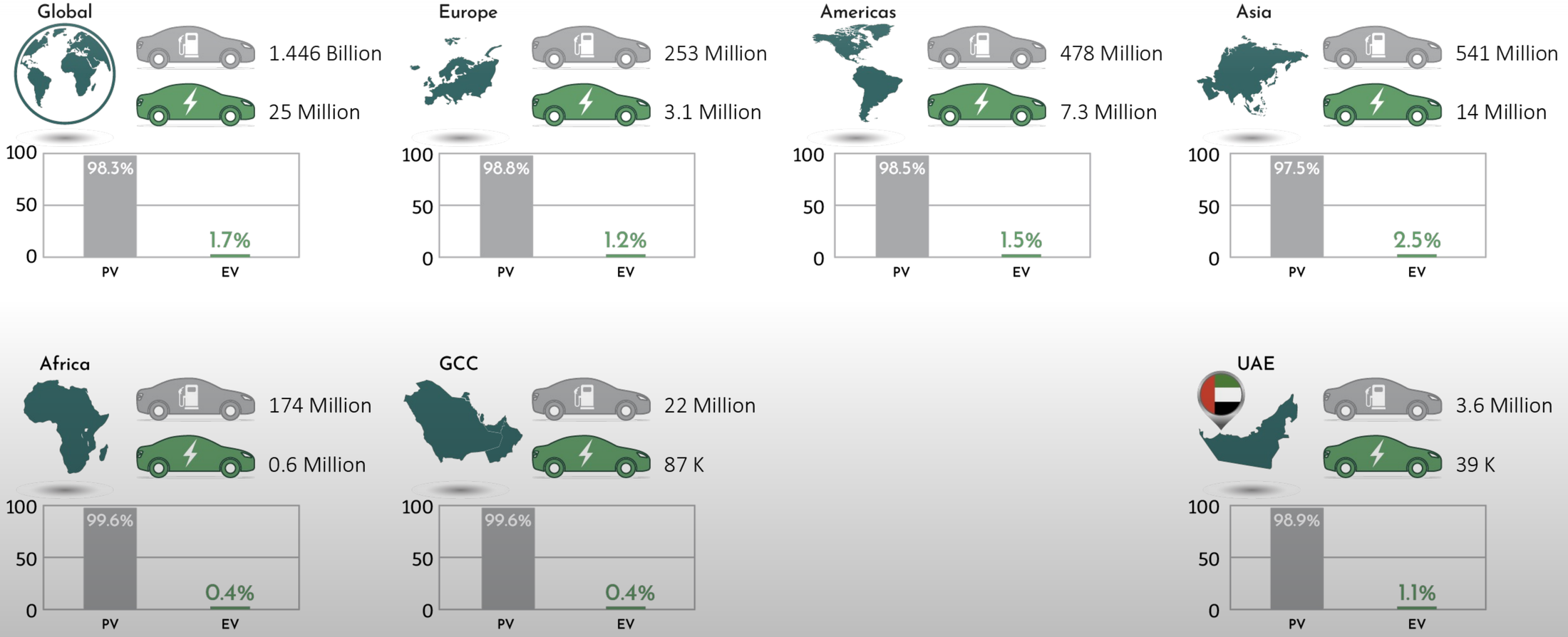
Number of electric vehicles



2025	2030	2035	2050
90,091	370,933	779,700	2,330,676

Green Mobility

Status quo of EV penetration locally, regionally, and globally



Sector

The UAE took effective measures to decarbonize the building sector

Retrofitting existing buildings	Implementing green building codes	Enhancing implementation of energy efficiency standards and rating system for household appliances and equipment	Driving penetration of Distributed Renewable Resources Generators e.g. rooftop solar panels and solar water heating	Raising public awareness of ways to conserve energy and water resources	Increasing efficiency and reliance on recycled wastewater in landscape irrigation
○ Reducing energy consumption by 40% and water use by 20% from the building sector in the UAE by 2050	○ Improving air quality at construction sites by 95%	○ Recycling 50% of construction waste	○ Saving AED 17 billion by 2050 through reduction in energy and water consumption and implementation of recycling policies		○ Achieving a reduction in carbon dioxide emissions equivalent to MTCO 229 compared to BAU by 2050

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Thank You

July 2023