

How serious is the UAE about sustainable development?

- “The UAE is taking unprecedented steps to minimize our urban environmental impact”
- UAE Vision 2021 implements a long-term approach to ensure sustainable national development
- Abu Dhabi has a 7% renewable energy target by 2020; Dubai has a 5% renewable energy target by 2030
- The Northern Emirates have an urban planning strategy for 2030
- Efficiency codes for new buildings, public lighting, air conditioners, water usage
- UAE Vision 2021: “Innovation, research, technology will be the pillars of a knowledge-based, competitive economy” UAE vision 2021
- The UAE has invested extensively in clean energy technologies to safeguard its economy and environment
- Masdar City is a low-carbon, low-waste city

***How is the UAE achieving its green economy vision while managing its high per capita emissions?**

- “The UAE is a young and rapidly-developing nation.”
- “We have to build roads, bridges, infrastructure; elements that are already in place in other nations”
- Among the world’s highest population growth rates over the last decade; electricity demand up 500% over the last 20 years; an extreme climate, 99% of fresh water comes from desalination
- Vision 2021 addresses sustainability issues and pushes for lowering domestic emissions
- “Our efforts at home and abroad are bridging the gap between the developed and developing worlds, and enhancing international efforts to put the planet on a sustainable path”

***Why is an oil-and-gas producer making renewable energy and clean technologies a clean energy a priority?**

- “The benefit of our natural resources allows us to leverage them to bring about the additional resources the world will need to meet future demand”
- “We’re paving the way to a green economy supporting economic stability and social empowerment”
- “We are inspiring innovation by nurturing action-oriented initiatives that are creating jobs”
- The UAE has been recognized as a leader in the energy sector—and leadership entails responsibility
- And as leader in the energy sector, we have a responsibility to contribute to the energy sector’s evolution.
- We see renewable energy as a natural extension to our existing energy expertise and a logical step forward in maintaining our future prosperity and safeguarding our environment

How far back does the UAE’s environmental commitment go?

- “Respect for the environment and commitment to sustainability are key attributes of our cultural heritage”
- Sheikh Zayed bin Sultan Al Nahyan: ‘The ecological balance should not be disturbed, for our survival is dependent upon it’
- Conservation efforts date back to the 1960’s, outright ban on hunting in 1972
- HH Sheikh Zayed worked to combat desertification by planting millions of trees
- Mohamed Bin Zayed Species Conservation Fund: grants to more than 600 international projects
- “We’re conscious of our responsibility to safeguard nature and mitigate the effects of climate change”
- The UAE’s commitment to sustainability began with HH Sheikh Zayed who quickly recognized that the UAE will need to diversify its economy to survive – this was never a choice for a UAE but a realized and serious imperative

- The UAE is a regional leader in promoting environmental sustainability initiatives to reduce carbon footprint through the formation of the Dubai Carbon Center of Excellence, an initiative that is part of Dubai's lead to reduce emissions of greenhouse gases
- The UAE Green Vision for Sustainable Development launched by HH Sheikh Mohammed Bin Rashid Al Maktoum, UAE Vice President & Prime Minister and Ruler of Dubai is laying the foundations for a sustainable future for the UAE
- "Our country is only 40 years old and we have undergone rapid growth and achieved significant prosperity since then. While this has presented challenges in terms of balancing growth and sustainability, we continually seek to rise to meet and learn from these challenges. We are both sincere and ambitious when it comes to our environmental commitments and though we still have far to go we like to believe that we have already achieved much."

What is the country doing to advance its legacy?

- In 2006, the UAE launched Masdar
- That same year, Abu Dhabi established the Masdar Institute of Science and Technology – an independent, graduate level, research driven institute in collaboration with MIT
- As part of taking the legacy of Sheikh Zayed forward – the UAE leadership established the Zayed Future Energy Prize; In only 5 years, the Prize has expanded from one category to 5 and recently launched the Global High Schools Prize – which is also one of the UAE commitment to the Secretary General's year of sustainable Energy for All
- Young Future Energy Leaders convenes more than 100 international students/professionals
- World Future Energy Summit (WFES): a platform for bringing together international leaders from the finance, academic, business, and governmental sectors to discuss and find solutions for the future of renewable energy
- In 2012 – HH Sheikh Mohamed bin Zayed Al Nahyan launched the International Water Summit – in a bid to accelerate movement and dialogue on one of the most crucial components of the sustainability of our world – Water. The Focus of the 2013 IWS will be the Water/Energy Nexus
- In 2009, the UAE won the bid to host the International Renewable Energy Agency (IRENA) – to be located in Masdar City. IRENA is mandated by its 158 members to deploy and disseminate renewable energy technologies to developing and developed nations alike.
- In a bid to ensure that IRENA enjoys the support it requires from the United Arab Emirates – and in order to engage actively in the global dialogue on Climate Change, the UAE established the Directorate of Energy and Climate Change, within the Ministry of Foreign Affairs in March 2010
- Abu Dhabi Urban Planning Council's Estidama: regional sustainability program designed to support sustainable development, from design to construction to operational accountability
- "Integrated planning and execution will ensure that social and economic development across the entire nation is sustainable and efficient"
- The Emirates Energy Award recognizes best practices in energy conservation and management that demonstrate innovative, cost effective and replicable energy-efficiency measures. Held under the patronage of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, this bi-annual award reflects the commitment of the UAE's leadership to preserve our environment and resources, promote innovation and recognize achievements in sustainable development within the energy sector.

The UAE has a lot of money to host international events and talk about issues. But many of your renewable energy projects and investments have been stalled or are not as far along as promised. What real actions is it taking to deliver on its promises?

- The UAE is ensuring we have the leadership in place to adapt to these industry shifts. That is exactly what everyone in the industry is doing right now. This the time when the serious players will stand out
- The sector has experienced tremendous changes in recent years and we have been responsive to these changes in progressing our projects (e.g. Shams 1, London Array, Gemasolar)
- “The UAE’s role as host and active member of the world’s first renewable energy agency, IRENA, demonstrates our commitment to renewable energy and global leadership in sustainable energy”
- Shams-1: 100 MW Solar Field in Abu Dhabi; Masdar: 10 MW solar, international investments and ADFD funds
- The UAE 2021 Vision: cohesive, environmentally healthy, tolerant communities
- Dubai Integrated Energy Strategy 2030: urban SDG’s, triple bottom-line parameters
- Dubai Electricity and Water Authority (DEWA) comes first at international levels in terms of reduction of electricity loss; 3.49% in 2011, which is considered one of the lowest and best percentages in the world when compared with 7 - 6% in Europe and America. DEWA will manage the Mohammed bin Rashid Al Maktoum Solar Park and is on track to complete the first 10MW photovoltaic project by the end of 2013.
- “We are developing renewable energy technology in parallel with projects that optimize efficiency with existing infrastructure”

***How can an oil and gas rich country develop from a fossil-fuel economy to a green economy?**

- “Through intellectual and financial investments, we are paving the way to a green economy that supports technology transfer, economic stability, and social empowerment”
- “We are inspiring innovation by nurturing action-oriented ideas and initiatives that are creating jobs in a depressed global economy”
- Domestic: RES: Abu Dhabi 7% 2020 and Dubai 5% 2030, CO2 Abatement Strategy (Dubai)
- International: ‘game-changing innovations’ through our partnerships at the UK’s London Array and Torresol solar projects in Spain
- The UAE Green Vision for Sustainable Development launched by HH Sheikh Mohammed Bin Rashid Al Maktoum, UAE Vice President & Prime Minister and Ruler of Dubai is laying the foundations for a sustainable future for the UAE
- The Dubai Integrated Energy Strategy 2030 will diversify Dubai’s energy mix so that by 2030 12% will be sourced from nuclear energy, 12% from clean coal, 5% from solar energy and the remainder from natural gas
- “The natural resources we have been blessed with allow us to leverage them to bring about the additional resources the world will need to meet future demand”
- “To ensure lasting competitiveness, we are looking beyond traditional economic models”

How accurately can the UAE plan its Green Growth efforts, given the exponential growth the country is experiencing?

- “The UAE’s Vision 2021 implements a long-term approach to ensure sustainable national development”
- The Federal Strategic planning process is based on 3-year planning cycles between now and 2021
- Decisions are based on better access to environmental and societal data and information
- Abu Dhabi has set a 7% renewable energy generation capacity target by 2020, or roughly 1500 MW, fulfilled by solar, wind, and waste-to-energy plants. Nearly 250 MW are now under construction or approved and funded
- Dubai’s developing a 1 GW solar park to meet its 5% renewable energy consumption target by 2030
- Dubai is focused on sustainability on an Economic, Social and Environmental levels in the way it plans and implements its initiatives

- The UAE's largest utilities, ADWEA and DEWA, have installed more than 400,000 smart meters
- Anticipating growth: the Northern Emirates have an urban planning strategy for 2030
- "We find inspiration in the challenges we've overcome, and the potential that lies ahead"

What kind of green growth research and development is the UAE doing at home?

- "We are an incubator of advanced thinking and technology"
- Masdar Institute of Science and Technology: filed 16 patents for energy efficiency management
- MIST Sustainable Bioenergy Research Project (partnership with Boeing, Etihad Airways, Honeywell)
- Research on bio-saline agriculture: saline-capable plants, reduction of agricultural water usage
- Dubai Carbon Center of Excellence plans to offset 5-million tons of carbon annually
- 2011 Eye on Earth Summit's Eight Special Initiatives: improving access to environmental and societal data and information locally, regionally, and internationally
- "Innovation, research, science and technology will be the pillars of a knowledge-based, competitive economy"
- "Innovation, research, science and technology will form the pillars of a knowledge-based, highly productive and competitive economy, driven by entrepreneurs in a business-friendly environment where public and private sectors form effective partnerships"
- Dubai's Mohammed bin Rashid Al Maktoum Solar Park, with an expected total capacity of 1,000MW, will have a research and development center and educational institute to become a global center of excellence for solar energy

To what extent are the UAE's population and demand growth driving the country's renewable energy goals?

- Our population is experiencing significant growth but we are working to establish efficiency standards to ensure
- "The UAE is taking unprecedented steps to minimize our urban environmental impact and foster economic and social development, based on credible data and information"
- Abu Dhabi building codes cut consumption by 33% in new buildings (this is especially stringent, given the harsh UAE climate)
- Public lighting policies have an estimated 67% energy savings
- Efficiency mandate eliminates the least-efficient 20% of air conditioners sold
- Water Usage: Abu Dhabi aiming for 100% wastewater reuse by 2013
- Long-time use of treated water for public landscaping in Dubai and for some agriculture
- Inaugural International Water Summit in January 2013, promoting water sustainability in arid regions
- "The government will act decisively to reduce the nation's ecological deficit, promoting environmental awareness and responsible behavior among Emiratis"

***Abu Dhabi has a 7% RES goal for 2020. how can the UAE possibly get to 7 in 7 years?**

- "Our experience has shown that not only is it possible to do innovative things, like promote the use of renewables and become more responsible stewards of our resources, it's critical"
- Abu Dhabi has set a 7% renewable energy generation capacity target by 2020, or roughly 1500MW; expected to be met by construction of solar, wind, and waste-to-energy plants.
- Shams-1: 100 MW Solar Field in Abu Dhabi; Masdar: 10 MW solar
- The 7% goal is among the highest of the region

- “New energy-efficient technologies will harness the UAE’s pioneering role in the green revolution and reduce its carbon footprint”

***Why would an OPEC member want to drive clean energy technology?**

- “While we’re blessed with tremendous energy reserves, our founding father Sheikh Zayed bin Sultan Al Nahyan instilled upon us the responsibility of preserving our natural resources”
- “Our transition from a resource-based to a knowledge-based economy is bringing to life new ideas that test, build, and scale the diverse energy mix necessary for a sustainable society”
- “The benefit of our natural resources allows us to leverage them to bring about the additional resources the world will need to meet future demand”
- “Economic diversification: the surest path to sustainable development in a future less reliant on oil”

How is the UAE advancing the international clean energy effort?

- “As part of a growing, international movement, we’re collaborating with other like-minded nations to continuously learn, build upon our progress, and create a sustainable future for all”
- The UK’s London Array, at 630 MW, is the world’s biggest offshore wind farm
- Torresol projects in Spain: ground-breaking renewable storage, able to run at capacity even at night
- IRENA Global Solar and Wind Atlas: UAE’s contribution is a model for developing countries and those with similar climatic conditions to design policies, and procure financing and partners
- The UAE is a participant in the Clean Energy Ministerial (CEM) is a high-level global forum to promote policies and programs that advance clean energy technology, to share lessons learned and best practices, and to encourage the transition to a global clean energy economy
- GGGI’s Abu Dhabi regional office driving green growth in MENA (Jordan, Morocco, Ethiopia)
- “The UAE is bringing game-changing innovations to life through our international partnerships”

What are some real-world examples of the UAE driving the clean-tech sector?

- “We’re investing in measurable goals to achieve sustainability objectives with real-world impact”
- UK London Array: UAE partnership, 650 MW in Phase One, will power almost half-a-million homes a year, avoiding almost 1-million tonnes of CO2 annually
- Spain Torresol Projects: concentrated solar, Gemasolar array has been called a ‘24/7 solar energy plant,’ can generate power for 15 hours without sunlight
- Global Solar and Wind Atlas (through IRENA): mapping the specific effects of regional climates on the effectiveness and geographic viability of clean energy sources
- Mohammed bin Rashid Al Maktoum Solar Park 1000 MW by 2030

What is the UAE doing to help developing countries tap their clean energy potential?

- “The UAE is innovating and empowering to build a sustainable future for all”
- Seychelles wind: 6MW of wind energy, will be 11% of country’s installed capacity
- Tonga solar: solar PV supplying 13% of national demand, replaces 180-thousand litres of diesel fuel
- Afghanistan solar: rooftop PV installations, providing off-grid power for remote villages
- Through IRENA, the Abu Dhabi Fund for Development is providing \$350-million USD for renewable energy projects in developing countries (opening the application process at RIO+20)
- Global Solar and Wind Atlas (through IRENA): mapping the specific effects of regional climates on the effectiveness and geographic viability of clean energy sources
- Dubai actively supports international organizations by sharing best practices and innovative developments in sustainability with nations around the world who are looking to develop and improve their existing capacity to deliver clean energy for their inhabitants. Recently, Dubai Electricity and

Water Authority completed a successful program with the Libyan Ministry of Electricity and Renewable Energy to improve its operations in terms of efficiency, reliability and productivity

The UAE has an abundant amount of space in the deserts and constant sunlight, so why can't your country run on 100% on solar power?

- "The UAE's extreme climate conditions present unique challenges to widespread solar deployment"
- Major photovoltaic and concentrated solar projects in Abu Dhabi and Dubai
- UAE Solar and Wind Atlas: mapping and sharing geographic climate effects on renewable energy
- Mohammed Bin Rashid Al Maktoum Solar Park with a capacity of 1000 MW by 2030
- "Solar is a promising technology, and we're taking active steps to improve its use and identify the technologies that best meet our needs"

What is the UAE doing right now to change its energy strategy in the future?

- "The UAE is bringing to life action-oriented knowledge and ideas that lead to sustainable economies, environments, and societies"
- Clean Energy projects: Shams-1: 100 MW of concentrated solar, Sheikh Mohammad bin Rashid Al Maktoum Solar Park will deliver 1,000 MW of solar
- Masdar Institute of Science and Technology Sustainable Bioenergy Research Project (partnership with Boeing, Etihad Airways, Honeywell)
- The UAE supports the International Air Transport Association's CO2 emissions target
- Airlines are utilizing more efficient fleets and international routes
- Etihad National freight rail network for all 7 Emirates announced, Dubai light-rail metro system operating since September 2009 and Abu Dhabi system announced
- Innovating clean technology at Masdar Institute, improving urban sustainability at Masdar City
- Dubai Integrated Energy Strategy 2030

Outside of renewable projects, what is the UAE doing to mitigate climate change?

- "We're using our energy expertise as a foundation for innovating and advancing clean technologies"
- UAE Green Growth Plan: policies in energy, agriculture, investment, and transport to build an economy that protects the environment, as well as an environment that supports economic growth
- Carbon Capture and Storage: Taweelah was the first Gulf Country to obtain UN-issued CER's
- Enhanced Oil Recovery: Abu Dhabi project for 850,000 tons of carbon annually tendered this year
- Efficiency measures: Estidama building codes, CFL deployment, stricter policies on reuse of water
- Dubai's Green Building Regulations
- Innovating clean technology at Masdar Institute, improving urban sustainability at Masdar City

***The UAE says it is taking steps to address climate change, but you have not set goals yet. How can the UAE's achievements be tracked?**

- "The UAE cautions to set only those goals we know are achievable; countries set targets all the time, but those targets are not met"
- "We're working with our partners to develop the technology to accurately track and monitor our carbon emissions"
- "The UAE is a fast-growing, highly-skilled market and our emissions vary according to many of our development demands"

What role do women have within the UAE's green economy transformation?

- “While we are a young country, we have done much over the past 40 years to advance gender equality and sustainable development”
- Emirati student body at Masdar Institute of Science and Technology has 1:1 female-to-male ratio
- Awarded a Zayed Future Energy Prize to DipalBarua, who empowered women to help deliver solar technology to 2-million people in Bangladesh
- The UAE is committed to being a global partner in the promotion of energy sustainability amongst its communities and especially women, as demonstrated by Dubai’s hosting the World Energy Forum 2012, which will discuss women’s empowerment in sustainable development.
- The initiatives spearheaded by many of Dubai’s governmental organizations include the formation of womens’ committees to advance education for women and actively promote their roles within the workplace, society and the preservation of the environment
- “Empowering women remains a central tenant of the UAE”

The UAE is planning to build four nuclear reactors in the next year. How can the UAE or anyone in the Middle East guarantee the security of nuclear fuel and waste?

- “We’re utilizing our international alliances to safely and securely develop and implement carbon-free nuclear energy, an effort to minimize the current environmental impact of our growing cities”
- “Our nuclear program is uniquely international, as it doesn’t require fuel enrichment or processing”
- Validation from international organizations and government, IAEA monitoring of UAE program (transparency)

How does nuclear improve the UAE’s energy security?

- “We are committed to the safe and responsible use of nuclear energy”
- “As populations like ours expand and extreme climate conditions intensify, creating a sustainable future for all will hinge on empowering ourselves to use resources responsibly”
- “Without rivers for hydroelectricity or seismic activity for geothermal energy, peaceful nuclear energy is among the most viable, carbon-free base load energy available to the UAE”
- “Balanced growth must be fueled by a sustainable range of energy resources”

What is Green Growth?

- "Green Growth" is a new economic model linking economic growth with sustainable development, where economic prosperity can go hand in hand with environmental sustainability.
- It will enhance the UAE's international standing and our ability to deliver on our responsibility as a nation supporting global efforts to mitigate climate change.
- Green growth can be achieved through:
 - new green, sustainable growth engines in a business friendly, competitive and entrepreneurial economy which harnesses the full potential of our nations' human capital.
 - adopting renewable and low carbon energy sources and increasing efficiency in energy, water and resource use into our industries and our daily lives.
 - creating attractive investment opportunities through developing and deploying new, green technologies as we develop our cities to be smarter and greener offering world-class public infrastructure.
 - shifting to a knowledge-based and highly productive economy, with effective partnerships between the public and the private sector.

What is the difference between Sustainable Development and Green Growth?

- Green growth is a tool used to achieve green economy, while sustainable development focuses on the three pillars of economic, environmental and social, a more broader and complex concept.
- Green growth is not a replacement for sustainable development. Rather, it provides a practical and flexible approach for achieving concrete, measurable progress across its economic and environmental pillars.
- Green growth emerged as a concept, lead by Korea, following the financial crises as countries sought for new economic growth path.
- There is no "one-size-fits-all" approach to green growth; it depends on institutional settings, level of development, social structures, resource endowments and particular environmental pressure points.

How is the UAE's Green Growth Strategy Being Developed?

- The UAE launched a project to develop a national strategy on green growth at the World Future Energy Summit in January 2013, following the "Green Economy Vision" announcement by H.H. Sheikh Mohammed Bin Rashid Al Maktoum in 2012.
- A draft National Strategy for Green Growth will be prepared for the UAE Cabinet of Ministers for review and consideration by the end of September 2013.
- The work is lead by the Ministry of Environment and Water, together with Ministry of Foreign Affairs and the Prime Minister's Office, with technical and analytical support from the Global Green Growth Institute (GGGI).
- The work involves UAE situation analysis (including key environmental and climate challenges; relevant sectoral policy and regulation; opportunities for green development) and benchmarking through extensive domestic stakeholder consultation.

What are Major UAE Green Growth Initiatives?

- Plans to diversify energy sources: 30% low carbon power in Abu Dhabi by 2020, 30% energy efficiency and 20% clean energy in Dubai by 2030.
- Major investments in clean energy and sustainable living: Masdar City, Dubai Metro, Shams 1 solar plant, Flare-Gas Reduction initiatives.
- Several policy frameworks working towards a greener environment: UAE VISION 2021.
- Abu Dhabi Environmental Vision 2030, Dubai Integrated Energy Strategy 2030, Estidama.
- Universities dedicated to green technology: Masdar Institute, Swiss Federal Institute of Technology
- Hosting of the International Renewable Energy Agency (IRENA) and GGGI Regional office, and the creation of the Department of Energy and Climate Change at the Ministry of Foreign Affairs.

What are the Main Elements of the UAE Vision 2021?

- Sustainable and diversified economy: following the path of sustainable development by less reliant on oil in the future, diversify energy sources, fossil, renewable and nuclear
- Attract direct investment
- Create new jobs
- Enhance business competitiveness
- Knowledge-base and high productive economy: growth is driven by knowledge and innovation.
- Invest in science and technology

What is Global Green Growth Institute?

- In 2008, South Korea announced its green growth vision aimed at shifting from fossil-fuel dependent growth new technologies and renewable energy-based growth. This was followed by a 5-year action plan to implement Green Growth throughout the South Korean economy.
- In 2010, South Korea established the Green Growth Institute (GGGI), an international platform for developing countries to maximize the progress on climate change and other environmental challenges within core economic policy and business strategies and to assist member countries in developing and implementing plans to introduce policies and initiatives that will facilitate their adoption of the green growth model.
- The UAE signed a Memorandum of Understanding (MoU) with GGGI in March 2011 whereby the UAE became a country-member of the Institute, supporting its efforts to disseminate Green Growth policy in the MENA region through a regional GGGI office in Abu Dhabi. The MoU also calls on both the UAE and GGGI to work together to develop a national strategy and policy framework for the introduction and implementation of Green Growth in the UAE.

Key Economic and Environmental Challenges for the UAE

- Rapid industrialization as part of current economic growth policy
- Fast population growth: over 300% since 1995
- Rapid growth in government energy expenditure and subsidies
- Shortage of natural gas fuel for power generation
- Hot weather, drylands and stressed fresh water resources

- High energy and water consumption per capita
- Growing carbon emissions & exposure of coastal zones to climate change risk