



Water and Energy Sustainable Innovation and Industrial Conference & Exhibition

University of Bahrain

22nd – 23rd April 2018

“Energy Resources Management and Sustainable Development”

Eng. Ahmed Hasan Al-Ezz

PhD Scholar, MSc, BEng (Hons), IEng, PMP, FMP, AVS, AIMechE, ACI Arb

Managing Partner, MENA Region

Alezz & Bakers Associates W.L.L. – Kingdom of Bahrain

info@alezzandbakers.com

Outline

- **Introduction**
- **Background**
- **Challenges**
- **The role of energy resource management in sustainable development in a country**
- **The strategies used by countries to achieve sustainable development in the energy sector**



Outline

- **Laws and rules put in place by international bodies to promote energy resource management**
- **The role of policymakers at the federal level in influencing research agendas in energy management for sustainable development**
- **Economy and Sustainability**
- **Conclusion**



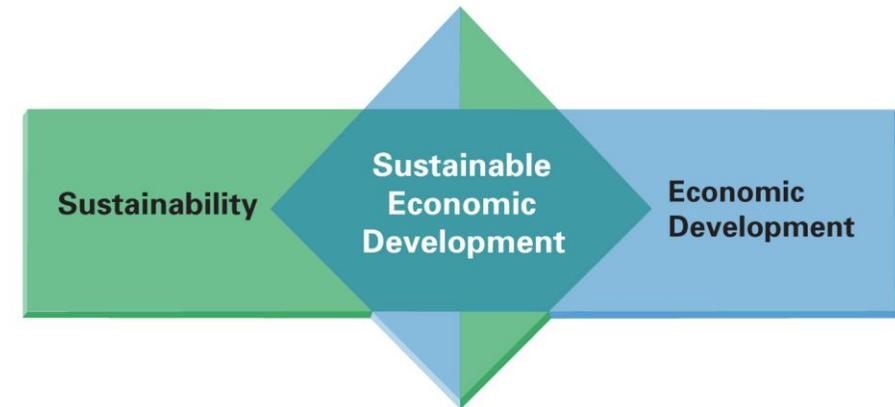
Introduction

- ❖ Non-renewable energy is a scarce resource that comes from sources that cannot be recovered, once they are replenished.
- ❖ Majority of non-renewable energy emanates from fossil fuels.
- ❖ This is the reason for the emergence of sustainability programs and policies, aimed at reducing the extraction and consumption of non-renewable energy.
- ❖ To limit the contributions of researchers, engineers, investors and economist in environmental pollution, there is a need of coming up with benchmarks, that seek to promote the use of renewable energy.

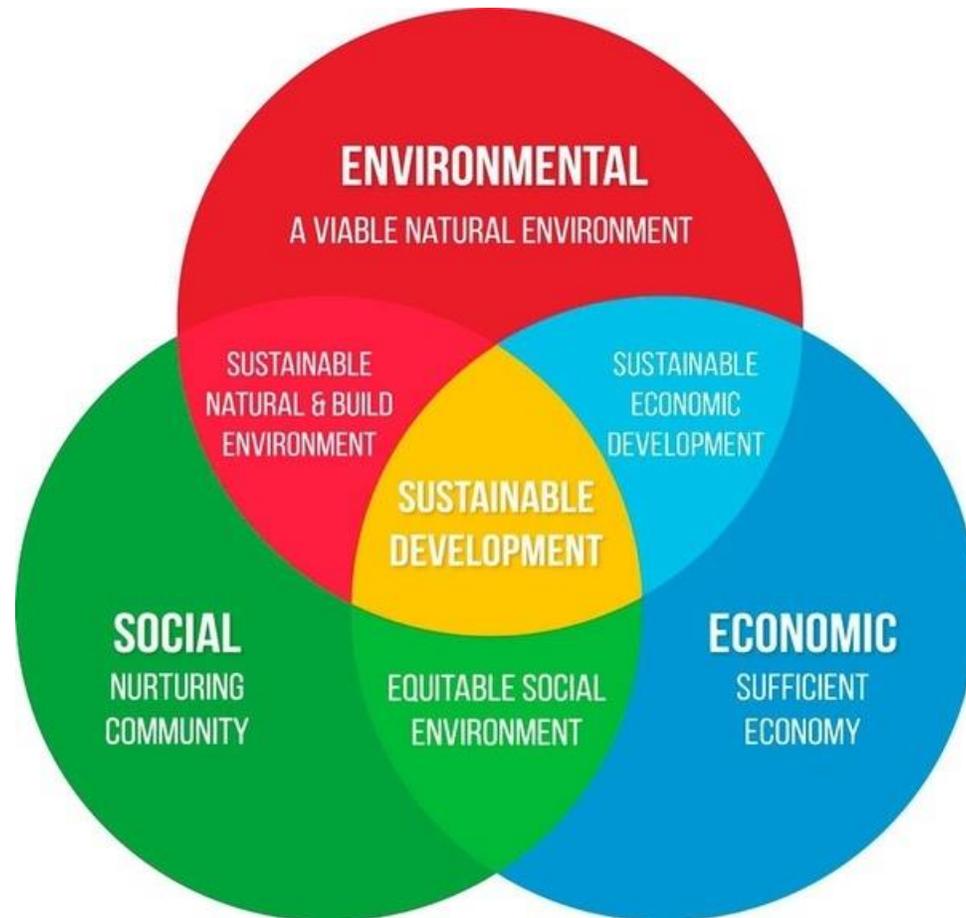


Background

- Non-renewable sources of energy are some of the factors that cause environmental pollution.
- To reduce environmental pollution, there is a need of encouraging the use of renewable sources of energy.
- One of the sectors that are responsible for environmental pollution is the engineering industry.
- There is a need of encouraging the use of renewable energy in these industries.



Background



Source: Alisa, G. D. (2007). *Dimensions of sustainable development a proposal of systemization of sustainable approaches*. Foggia: University of Foggia

Background

- Energy resource management refers to the art of using resources and ensuring that they are divided equally between the current and the future generation.
- Natural resource management describes the right use of resources to avoid and reduce environmental pollution.
- Sustainable development embraces both social and environmental factors in the ecological system.
- The current generation must meet their basic needs without interfering with the ability of the future generations to meet their basic needs.



Challenges

- The problem of a high population growth rate especially in MENA is an implication that a lot of energy resources will be exploited to sustain the high population.
- The most substantial number of people living in the area relies on natural resources for energy are most dominant and therefore they suffer the repercussions of deforestation and pollution.



Challenges

- According to statistics, an estimated 97% of exports in Bahrain are obtained from energy resources.
- Drilling activities do not follow the principles of resource management and oil spills have been reported on numerous occasions, and as a result, showing little concern for the future generations.



The role of energy resource management in sustainable development in a country

- Energy resource management reduces poverty and hunger due to access to cost-effective energy sources.
- The resource management makes an effort of facilitating sustainable forms of energy that promote social and economic well-being.
- Renewable sources of energy help in reducing emission, thereby promoting good human health.
- Energy resource management promotes industrialization.
- The resource management creates a clean, safe and better environment for sustainable development.



The strategies used by countries to achieve sustainable development in the energy sector

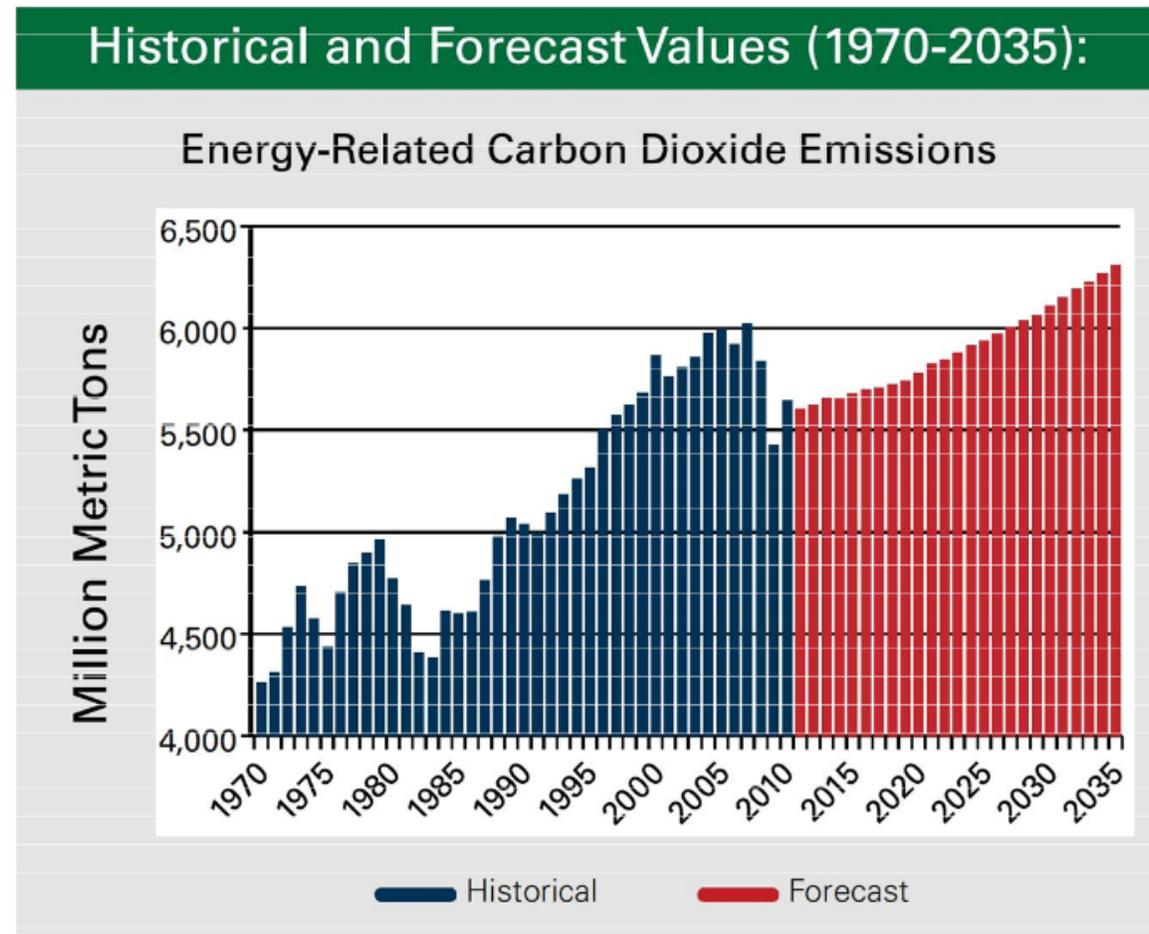
- Producing a complete energy supply policy based on the United Nation's Sustainable Energy.
- Reviewing the national policies on energy resources.
- Conducting annual monitoring of the energy supply, mainly by computing the Energy Development Index.
- Designing a scenario-based energy demand forecasts by employing the energy modeling tools on short-term and medium-term horizons.



The strategies used by countries to achieve sustainable development in the energy sector

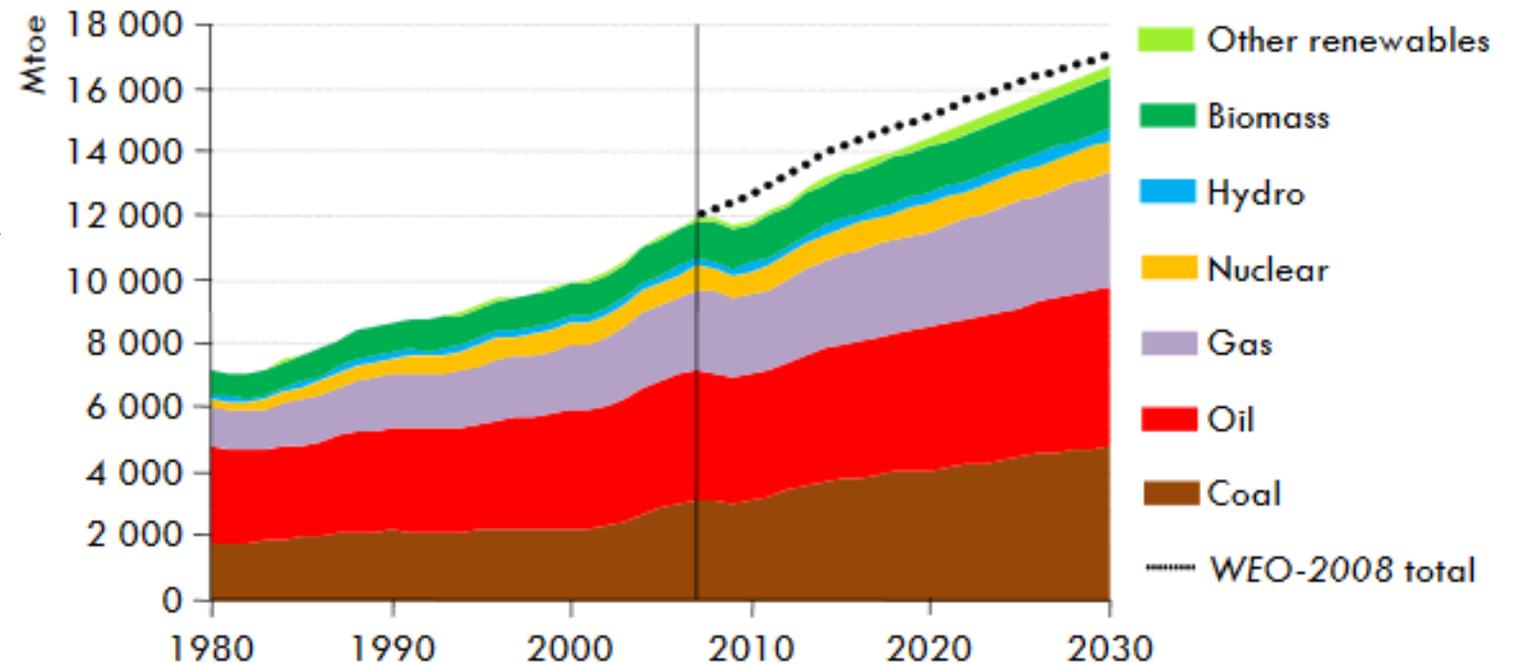
- Global energy demand and energy-related CO2 emission

Source: EIA Annual Energy Review
Monthly Energy Review and AEO2012
Department of Commerce, Bureau of
Economic Analysis Department of
Commerce, Census Bureau



The strategies used by countries to achieve sustainable development in the energy sector

- Global demand grows by 40% between 2007 and 2030, with coal use rising most in absolute terms:



Source: Olejarnik, P. (2010). *World Energy Outlook*. Paris: International Energy Agency

Laws and rules put in place by international bodies to promote energy resource management

- Climate change law
- Energy law and the environment pollution, control, and remediation
- The regime of exploration and exploitation of offshore sources of energy
- Natural resource statues
- Waste management law



The role of policymakers at the national level in influencing research agendas in energy management for sustainable development

- Involvement in multilateral and bilateral dialogues with the developing economies to facilitate the integration of environmental and developmental considerations.
- The use of technology policies to aid in the decoupling of environmental degradation.
- Strengthening the support of investment and trade systems to sustainable development across the globe.
- Reforms in the decision-making process regarding energy resource management.
- Research and innovation policy.



Economy and Sustainability

- Full implementation of these policies and strategies will help in saving the costs that researchers, engineers, investors and economist incur while serving the national sustainability aims.
- In the short run, the costs may be high. This is because it will take considerable amount of money and time to integrate those professionals on developing the new benchmark standards.
- In the long run, it is cost effective and beneficial to the economy. Not only regarding the money saved by the use of renewable energy sources, but also in the protection and conservation of the economy.



Conclusion

- Sustainable development implies that the production system should not lead to excessive natural resources depletion such as energy.
- The energy resource management has a significant role to play in facilitating sustainable development through advocating for renewable energy sources, cost-effective energy sources, sustainable forms of energy, industrialization and providing a safe environment.
- There are strategies that states can adopt for sustainable development such as creating an energy supply policy, reviewing national policies, annual monitoring of the policies as well as designing scenario-based energy demands.



Conclusion

- Laws such as energy law, climate change law, pollution control, waste management and natural resource statues would be effective in enhancing energy resource management.
- The policy makers should by all means support research in every country for sustainable development.



**Thank you
for your attention**

