

TRANSFORMING RENEWABLE ENERGY UTILIZATION IN THE APEC REGION

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Overview

Renewable energy resources offer significant benefits for APEC economies. They are potentially secure, sustainable and low in carbon emissions. The quantity of resources potentially available is enormous. Technological advancements coupled with supportive government policies have spurred the contribution of renewable energy to the APEC region's energy supply, especially in the power generation and transport sectors. Yet, traditional use of biomass for residential cooking, space heating and lighting is still widespread, especially in the less developed areas of the APEC region. This paper looks at how renewable energy utilization will develop in the APEC region over the long-term as economies transition towards low carbon options to supply their rapidly growing economic and energy needs.

Methods

For this study, renewable energy encompasses all forms of energy not produced from fossil fuels combustion or nuclear. Renewable energy development depends highly on available indigenous resources, and while environmental benefits from renewable energy power generation is easily apparent, the impact of renewable energy use in other sectors largely depends on how the source is being utilized. Therefore, renewable energy outlook for the APEC region is determined both by economy and by sector. This is done as a part of an overall APEC region energy demand and supply outlook project being conducted, although this paper will solely focus on the renewable energy aspects of the outlook project.

Some factors taken into account in the process of determining renewable energy outlook are: historical utilization, projected sectoral demand, assessed potential of available renewable energy resources (from either government assessments or academic papers), government targets for constructing renewable energy capacity and related infrastructure, and government policies for promoting renewable energy utilization (direct and indirect utilization).

Results

The renewable energy outlook for the APEC region will be projected for the years 2010-2035 (25 years) with the year 2009 as the reference year. With the aggressive policies in place in several of the member economies, our results would show significant growth for renewable energy capacity additions in the power generation sector (in the form of wind, solar and biomass power generation systems) and transportation sector (in the form of bio-energy conversion facilities and supply chain network). At the same time, with growing economic affluence, there will be better access to commercial forms of energy, thus allowing the continuing shift from traditional use of residential biomass to commercial fuels and electricity.

Figure 1 shows the increasing penetration of renewable energy (represented by hydro and NRE) in the APEC electricity generation sector over the years 2010-2035.

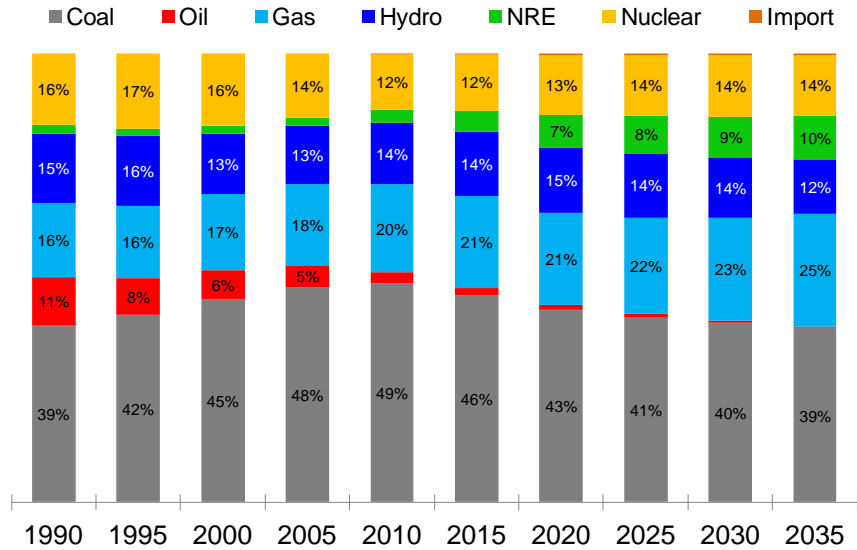
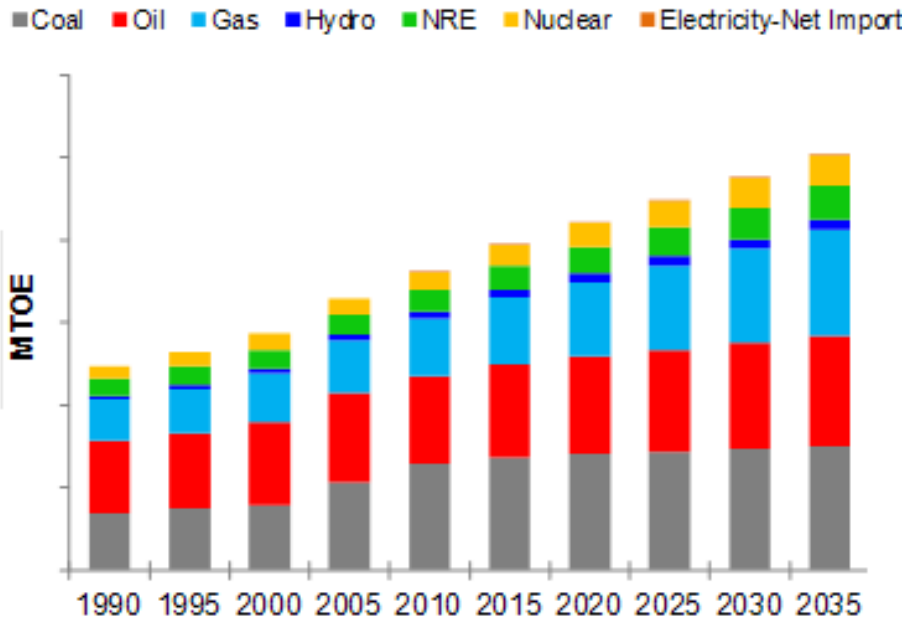


Figure 2 shows the increasing share for renewable energy in APEC's total primary energy supply for the same time period.



These findings will have significant implications on APEC's twin challenges for energy security and environmental sustainability.

Conclusions

In conclusion, the rapidly increasing demand for energy in the APEC region will require innovative ways of solving the problem of energy security without compromising economic growth or environmental sustainability. Developing renewable energy technologies can help to utilize locally available resources, create new jobs, and mitigate the negative impacts of fossil fuel combustion. However, as most renewable energy technology is relatively new compared to conventional technologies, there have been several issues that inhibit the widespread adoption of these technologies. It is important to address these issues if APEC economies are to transition towards a low-carbon pathway and avoid the damaging impacts of climate change.

References

1. Asia Pacific Energy Research Centre, *APEC Energy Demand and Supply Outlook – 5th edition*.
2. International Energy Agency, *World Energy Statistics 2011*, retrieved from OECD/IEA CD-ROM Service.