Renewable sources key to cheaper energy

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ENERGY supply costs could be drastically cut by doubling the share that comes from renewable sources such as wind and solar power, the latest analysis from the International Renewable Energy Agency (Irena) shows.

The Abu Dhabi-based intergovernmental agency tasked with supporting renewable technologies advised the UN that doubling the share of renewable energy to 36% of total final energy consumption by 2030 is affordable and possible if governments put in place policies to promote it.

This suggests a greater potential for rapid expansion in renewables than most other estimates have previously suggested.

Doubling renewable energy to 36% of global energy consumption in 2030 would cut global demand for oil and gas by around 15%, while demand for coal would be slashed by 26%, data from the report *REmap 2030* shows.

The study, which determines the realistic potential to scale up renewables by 2030, is a bottom-up analysis based on the energy needs of 26 countries that make up 75% of final global energy consumption.

Stay on target

With over one-third of energy supplies stemming from modern renewables the world would remain on a trajectory consistent with limiting emissions of carbon dioxide to below 450 parts per million – the threshold widely accepted to limit global warming by no more than two degrees Celsius above pre-industrial levels by 2100.

Still, the scale of change projected by Irena would be even more dramatic than the doubled share suggests, because about half of today's renewable energy comes from traditional biomass, including firewood and animal dung, which causes severe health problems in developing countries. But Irena believes traditional biomass could potentially be eliminated by 2030, meaning modern renewables such as wind, solar, hydropower and advanced biofuels would need to quadruple their contribution from 9% to 36%.

The shift would need investment in renewable energy to double, from around $224 billion in 2013 to an average of $460 billion per year. It would also require subsidies for renewables totaling $315 billion per year in 2030, the agency's calculations show. Still, that is less than the level of subsidies for fossil-fuel consumption, pegged at $544 billion in 2012. And per unit of modern renewable energy delivered, the subsidies would halve by 2030.

Cutting costs: Renewables could be the key

The transition to renewables will also be bolstered by expected declines in the price of technologies, such as solar panels and advanced biofuels.

In some emerging economies, particularly in South America and sub-Saharan Africa, the falling costs of renewables technologies mean they can already compete with fossil fuels without any subsidy at times.

Strikingly, taking external costs into account, the transition to renewables can be cost neutral, says the agency's director-general Adnan Amin.

"Our data shows that renewable energy can help avert catastrophic climate change and save the world money, if all costs are considered".

The report says that the investment cost of this global expansion of renewable energy is offset by savings of up to $740 billion per year on costs associated with pollution from fossil fuels.

The calculated savings depend on assigning a value to cuts in carbon dioxide emissions, because of their contribution to global warming, but Irena estimates that the shift would save money even at a price of $20 per tonne of those emissions, a number that is lower than is used in many long-term projections.

"Now it's a question of political will, and how ambitiously governments want to move on this," the *Financial Times* quoted Amin saying at the launch of the findings in New York.

Irena is backed by 170 governments, up from only 60 when it formally began work in 2011, showing the rising global interest in renewable energy.

Mind the gap

In a separate report, the International Energy Agency (IEA) said that despite growth in recent years, the investment gap between fossil fuels and renewable energy is still too wide.

According to the IEA's analysis, maintaining rising temperatures to within two degrees Celsius will require a breakthrough at the Paris climate summit in 2015. Hitting the target would require over $50 trillion of cumulative investment by 2035 – around $40 trillion in energy supply and $14 trillion in energy efficiency.

By 2035, investment in low-carbon energy supply should rise to almost $900 billion and spending on energy efficiency should exceed $1 trillion.

Based on the world's path today, energy-related carbon dioxide emissions will increase from 30 gigatonnes (Gt) in 2010 to 41.4 Gt in 2030, putting the planet on track for global warming in excess of four degree Celsius, which is widely expected to be ecologically and economically catastrophic.

Renewable energy can cut emissions by 8.6 Gt to an estimated 32.8 Gt in 2030, estimates Irena. Based on estimates from the IEA, energy efficiency can yield an additional 7.3 Gt reduction, resulting in global energy-related carbon dioxide emissions of 25.5 Gt by 2030, thus helping to keep a lid on global warming. ●