

## **2015 Global Energy Situation Seen from BP Statistics**

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On June 8, international oil major BP released its BP Statistical Review of World Energy 2016. As introduced in four of my past special bulletins (94th, 135th, 177th and 224th), the BP Statistical Review is one of the most representative international energy supply and demand statistics in the world. Energy experts throughout the world refer to the BP Statistical Review known as being comprehensive and covering the latest annual data. Based on the BP data, the following reviews the international energy situation in 2015.

First, the year 2015 saw a clear slowdown in growth in primary energy demand in the world as in the previous year. Primary energy demand in the world in 2015 totaled 13.15 billion tons of oil equivalent (TOE), up only 1.0% from the previous year. The growth rate was slower than 1.1% in 2014 and the lowest in the past period from 2000, excluding 2009 when primary energy demand posted a 1.5% decline amid global recession triggered by the Lehman Shock. While demand in the member countries of the Organization for Economic Cooperation and Development (OECD) posted a small rise of 0.1% in 2015 after a 0.7% decline in 2014, the non-OECD demand growth narrowed from 2.6% to 1.6%, contributing greatly to decelerating the global demand growth. Non-OECD demand which accounts for 58% of global energy consumption was decelerated in 2015, which contributed to easing the international energy supply-demand balance, together with expanding energy supplies.

Second, demand by energy source in 2015 showed that renewable energy (excluding hydro) scored a remarkable demand expansion of 15.2%. Of the overall primary energy demand increase of 127 million TOE in 2015, renewable energy accounted for 48 million TOE or 38%. Leading the growth was wind and solar energy that diffused fast globally. Fossil fuels oil and gas also made great contributions to the demand increase, accounting for 80 million TOE and 54 million TOE, respectively. Meanwhile, the biggest change in 2015 was a large drop of 1.8% in coal consumption. The drop was the largest since 1.4% in 2009 or even since 1970. Of the coal demand decline of 71 million TOE, the United States and China accounted for 57 million TOE and 29 million TOE. The substantial coal consumption drops in the two countries were a major factor behind the global coal consumption decline and the easing coal supply-demand balance.

Third, an energy demand growth slowdown in China as the world's largest energy consumer became clearer in 2015. While China's primary energy demand accounted for 3.01 billion TOE or 23% of the global demand in 2015, its primary energy demand growth rate of 1.5% was the lowest since 2000. Plagued with a soft landing at the New Normal, China saw its energy demand growth decelerate for the fourth straight year, since an 8.1% increase in 2011. While renewable and nuclear energy demand scored substantial increases of 21% and 29%, respectively, coal demand accounting for the largest share of 64% of total primary energy demand in China posted a remarkable fall of 1.5%. Chinese coal consumption decreased for the second consecutive year, reflecting oversupply in the steel, power and construction sectors.

Fourth, the United States continued to substantially increase oil and gas production on the supply side in 2015. U.S. oil production in the year totaled 12.7 million barrels per day, up 980,000 bpd or 8.9% from the previous year. U.S. oil production exceeded that of Saudi Arabia (12.01 million bpd), remaining the largest in the world for two years. It topped the past peak of 11.3 million bpd reached in 1970, hitting a new high for the second straight year. The expansion, though slower than 1.66 million bpd in 2014, was coupled with an oil output increase of 750,000 bpd in Iraq and 510,000 bpd in Saudi Arabia to support global supply and play a key role in easing the oil supply-demand balance and lowering oil prices.

U.S. natural gas production in 2015 also posted a steady increase of 5.4% from the previous year to 76.73 million cubic meters. U.S. natural gas output thus expanded for the 10th straight year since it turned upward in 2006 amid the shale gas revolution ahead of the shale oil output expansion. The United States replaced Russia as the largest gas producer in the world in 2009 and retained the position for seven years through 2015. In contrast to the United States, Russia, the second largest gas producer in the world, posted a 1.5% decline in gas output, falling for the second consecutive year. In 2015, the United States remained the world's largest oil and gas producer, continuing to symbolize the great impact of the shale revolution.

While total primary energy demand slowed its increase in 2015, renewable energy (excluding hydro) recorded the very high growth of 15.2%, as noted above. Renewable energy demand expanded both in OECD and non-OECD countries, scoring a 13.1% rise for OECD countries and a 20.1% increase for non-OECD countries. By country, China, Germany, the United States and the United Kingdom posted especially remarkable growth in renewable energy demand. Of the total renewable energy demand growth of 48 million TOE, wind power and solar energy accounted for 28 million TOE and 14 million TOE, respectively, indicating their great contributions to the total increase. While renewable energy demand has continued to expand under policy support, renewable energy power generation costs have reportedly posted a substantial decline thanks to a learning effect. The substantial expansion in wind, solar and other renewable energy power

generation coincided with price drops in the wholesale market for electricity, exerting some impacts on the economic viability of fossil power generation. Meanwhile, the increase in intermittent renewable energy power generation led to a steady rise in costs to address the intermittency. Indications in 2015 were that this challenge would grow more significant in the world.

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