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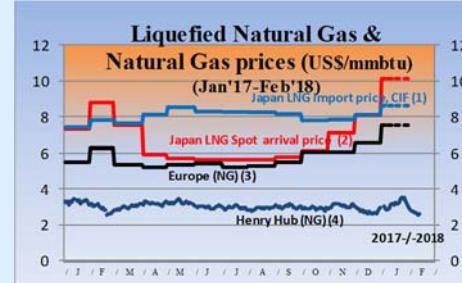
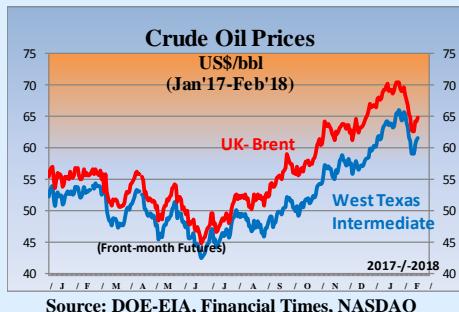
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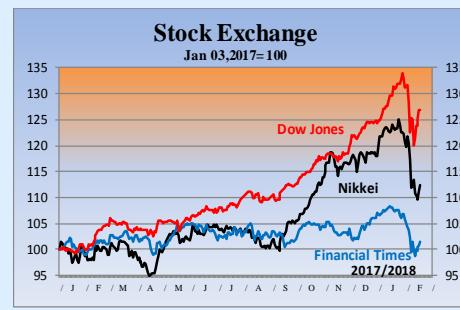
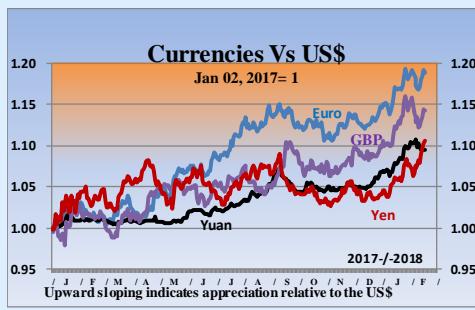
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The Institute of Energy Economics, Japan

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Sources:
 (1) Ministry of Finance "Japan Trade Statistics"
 (2) Ministry of Economy, Trade and Industry
 (contract month basis)
 (3) Estimated by World Bank and World Gas Intelligence
 (4) DOE-EIA, NYMEX (Front-month Futures)
 (5) Investing.com



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Summary

【World Monitoring】

1. US: Cost of Environmental Compliance in the Downstream Oil Sector

The largest refinery on the US East Coast filed for bankruptcy, allegedly partly the result of the cost of regulatory compliance associated with ethanol blending standards. The financial impact of complying with various regulations on the downstream sector is coming under the spotlight.

2. EU: Eastern Europe's Efforts to Reduce Dependence on Russia

Lithuania and Poland have announced their intention to reduce dependence on Russia particularly for natural gas imports, and received their first cargoes of American LNG last year. Attention must also be paid to the proposed revisions to the Gas Directives of the European Commission.

3. China: Switch to NEVs and Renewable Energies Accelerates

In 2017, sales of NEVs increased to 780,000 units while the percentage of renewable power sources rose to 36.6% on a capacity basis and 26.4% on an output basis. The switch to NEVs and renewables is likely to steadily continue.

4. Russia: Update on Russian Gas Exports for Europe

Supported by increased demand due to the cold weather in Europe and at home, the production and export to Europe of Russian gas both grew in 2017. However, exports by pipe to Europe face uncertainty and the situation must be monitored.

1. US: Cost of Environmental Compliance in the Downstream Oil Sector

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On January 22, 2018, it was reported in the media that Philadelphia Energy Solution (PES), the owner of the largest refinery on the US East Coast, had filed for Chapter 11 bankruptcy (rehabilitation). The company's 335 kb/d refinery supplies more than 25% of petroleum products in the New York Harbor area and employs 1,100 workers. However, there will be no disruption to petroleum supplies for the time being as the company will keep the refinery running on emergency bank finance while proceeding with the corporate rehabilitation.

PES cites the cause of bankruptcy as the increased cost of complying with the Renewable Fuel Standard (RFS) imposed by the Environmental Protection Agency (EPA) under the 2005 Energy Policy Act and 2007 Energy Independence and Security Act. Under the RFS, petroleum refiners/sellers are required to blend a certain percentage of ethanol in the gasoline they sell in the US (around 11% biofuel in auto fuel). If this obligation cannot be met due to the inability to purchase ethanol or not having one's own ethanol blending plant, credits (Renewable Identification Numbers, RINs) must be purchased from the market to compensate for the shortfall. Even though the statutory blending mandates kept rising each year, non-food ethanol supplies fell short, and with the rise in both the amount and price of RINs to be purchased, the regulatory compliance cost for PES since 2012 had reached 830 million dollars, according to the company.

Some link PES's bankruptcy to the failure of its strategy to buy mainly light low-sulfur oil, but the above issues in the RFS system had existed already in 2010. Hopes were rising that the Republican government, which advocates abolishing overly strict environmental policies and focuses on the supply side of energy, would revise this system, but the Trump administration has ignored this issue for the past year.

Meanwhile, regarding the improvement of car fuel economy and expansion of EVs, which is overshadowing the prospects for gasoline demand, a source of profits for the refining business, a senior EPA official has reportedly announced a policy to establish "national fuel economy standards." Under the 1990 Clean Air Act, California, whose fuel standards were more rigorous than the federal standards as of the enforcement of the Act, was allowed to implement its own standards with the approval of the federal EPA. The W. Bush administration did not grant this waiver (to implement original standards) on the grounds that subdividing domestic fuel and auto standards is not good for business, but the Obama administration later reversed this decision. This enabled California to implement the zero emission vehicle (ZEV) regulations, which are expected to drive the spread of EVs amid the lack of a federal EV policy.

The Trump administration has already said that the Obama administration's cars and light truck fuel economy standards are unachievable and announced that the standards for 2022-2025 would be revised. The administration has also proposed canceling California's waiver, as feared since the start of the Trump administration. As we wait for the EPA's decision on April 1, attention must be paid to the impact should the waiver be cancelled and the ZEV regulation abolished.



2. EU: Eastern Europe's Efforts to Reduce Dependence on Russia

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In January 2018, Prime Minister Abe visited the three Baltic States and some Eastern European countries, the first Japanese prime minister to do so. Lithuania, which was included in this trip, and Poland, which was not a destination this time but which held a foreign ministerial meeting with Japan last May, are particularly keen to reduce their dependence on Russia for energy resources. This report looks at the latest situation in the two countries and the EU.

In Lithuania, the energy minister approved the revised National Energy Independence Strategy last November. As the name implies, the diversification of energy sources is a top priority for Lithuania. The revised proposal pursues further integration of the country's energy market with that of continental Europe and synchronizing their power grids by 2025, and meeting the country's entire power demand with domestic electricity by 2050. The Strategy is due to be finalized following deliberations in the parliament.

In Poland, Finance Minister Morawiecki became Prime Minister in December last year. In his first speech after inauguration, the prime minister said that there will be no change in the current pro-coal policy, but a shift to nuclear, renewables and other low-carbon energies is being considered for the future, revealing his determination to achieve energy independence. The country's Energy Policy until 2030 and draft Energy Policy until 2050 put energy security as the top priority. The country's use of domestic coal resources and the construction of LNG terminals and expansion of LNG exports must continue to be monitored.

Both countries have set clear policies of reducing their dependence on Russian natural gas imports. As part of this effort, Poland and Lithuania imported their first cargoes of LNG from the US in July and August last year, respectively. The countries are also looking to use pipelines to diversify the sources of gas imports, and a pipeline connecting the two countries is due to be constructed. The pipeline will not be completed until the end of 2021 due to a route change in Poland for environmental assessment reasons, but will become the first pipeline to connect the three Baltic states to Europe. The EU has high hopes for the project.

As for the EU's moves in this regard, the European Commission proposed the revised EU Gas Directive in November 2017. The revised Directive clarifies that the core principles of the EU's energy laws of third-party access, customs regulations, separation of ownership, and transparency shall apply to all pipelines connecting the EU with third countries up to land borders under the EU's authority. The revised Directive may be modified in the course of deliberations in the European Parliament and European Council due to differences between member states, but if it is adopted relatively unchanged as proposed, the European Commission may reinforce its monitoring activities and intervention to ensure that the above EU principles are fully applied to Russia-EU pipelines. The situation must continue to be monitored.



3. China: Switch to NEVs and Renewable Energies Accelerates

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As part of its efforts toward sustainable development and building a low-carbon society, China is shifting from gasoline vehicles to electricity-driven next-generation vehicles (New Energy Vehicles (NEVs), which include EVs, PHEVs, and FCVs) and simultaneously from coal-fired thermal power to renewable power sources. In 2017, progress was made in both areas.

According to the annual report on the China automotive industry released by the China Association of Automobile Manufacturers (CAAM) on January 11, automobile production in 2017 was 29.02 million units, up 3.2% year-on-year, with sales of 28.88 million units, up 3%. While the overall market expansion was smaller than the initial estimate of 5%, the production of EVs and other NEVs increased by 53.8% to 790,000 units and sales grew by 53.3% to 780,000 units, exceeding the initial estimate of 700,000 units by 11%. The percentage of NEVs in the sales of all cars increased by 0.9 points to 2.7%. Behind the rapid growth of NEVs despite a 20% cut in purchase subsidies from last year was the restriction imposed on gasoline vehicles limiting the days they can be driven on the roads and the number of new number plates issued. More important, however, is the improved usability of NEVs, especially the rapid improvement of charging infrastructure (450,000 chargers as of 2017) and increase in cruising distance (300 km or more for major vehicles, catalogue performance-basis). Also significant was the government's decision in September last year to introduce the regulations and credit trading system for expanding NEVs (see the November 2017 edition of this Newsletter) despite opposition from domestic and foreign gasoline vehicle manufacturers. This is evidenced by the sales of NEVs in the three months from October to December of 380,000 units, accounting for 49.2% of annual sales and 4.4% of the sales of all vehicles during this period.

Meanwhile, according to the annual statistical report on the power industry released by the National Energy Administration on January 22 and the press conference on the 24th, in 2017, power generation capacity increased by 134 GW (7.6%) from the previous year to 1,779 GW. This includes 130 GW of solar PV, up 53.38 GW (68.7%), 164 GW of wind power, up 19.52 GW (10.5%), and 341 GW of hydropower, up 12.87 GW (2.7%), and renewable power sources together accounted for 36.6% of all power sources on a capacity basis, up 2.1 points, and 26.4% on an output basis, up 0.7% (of which wind and solar PV together account for 6.6%). On the other hand, nuclear power increased to 35.82 GW, up 2.18 GW (6.5%), but accounted for only 2.0% of all power sources on a capacity basis and 3.9% on an output basis. Coal-fired thermal power increased to 981 GW, up 38.55 GW (4.1%), but its percentage in capacity dropped 2.1 points to 55.2%. For China, decarbonizing the generation mix means reducing coal-fired thermal power, with solar PV and wind power acting as drivers.

The shift to NEVs and renewable power sources is likely to continue steadily. CAAM predicts that the production and sales of NEVs will surpass 1 million units in 2018. I forecast that they will be around 1.5 million units due to factors such as the policy effect of the regulations and credit trading system, last-minute demand before the reduction of subsidies planned for 2019, and greater convenience of NEVs owing to improvements in charging infrastructure and increase in cruising distance. Meanwhile, solar PV capacity is likely to expand at an annual pace of 50 GW through 2020.

4. Russia: Update on Russian Gas Exports for Europe

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On December 11, 2017, independent Russian gas firm Novatek announced that the first cargo of LNG had been shipped from its Yamal LNG Train-1 (production capacity of 5.5 million tonnes/year). Being the first export of LNG by a company other than the state-run Gazprom from a non-Sakhalin-2 site, the cargo was spot-purchased by Malaysia's PETRONAS LNG UK Ltd. for shipment to Britain. From April 2018, LNG sales to Gas Natural Fenosa and Engie are due to start on long-term contracts. According to Total, 46% of the long-term contracts are for Europe and 54% for Asia, but as the east-bound Arctic route from the Yamal Peninsula to Asia will be frozen during winter, the west-bound route for Europe will be used instead.

In 2017, Russia showed a strong renewed presence also in pipeline gas exports. According to a government announcement, gas production stood at 690.5 billion m³ for 2017, up 7.9% YOY and the highest since 2011. Gazprom's output also increased 12.4% YOY to 470.8 billion m³ buoyed by an increase in domestic demand and in exports to Europe which has been hit by cold weather. Russian gas exports to Europe, which have been gaining attention, stood at 193.9 billion m³, up 8.1% YOY. As the US grows in presence with the shale revolution, Gazprom has been expecting stiffer competition for market share in the European gas market and has been desperately protecting its market share, revising its long-term contract pricing system and switching to a low-price gas supply strategy.

However, not everything is secure regarding the future of Europe-bound gas export pipelines. For instance, the amount of Russian gas passing through Ukraine in 2017 reached its highest level in five years at 93.5 billion m³ (including 90.7 billion m³ for Europe, according to Interfax-Ukraine), up 13.7% YOY. Even so, Gazprom has been tapering the amount of gas exports to Europe passing through Ukraine under its policy of abandoning such pipelines completely by 2019. A dispute is ongoing with Ukraine, which is demanding a penalty for breaching the gas transit agreement.

There are uncertainties also regarding the alternative pipelines for avoiding transit through Ukraine. The Gazprom-led and European corporate-funded Nord Stream-2 project is stalled due to delays in obtaining construction permits from transit countries and concern over violation of the strengthened US sanctions act against Russia. Further, as for Turk Stream, which is also being considered as a route for Europe-bound exports via Turkey, Russia has begun to construct the Black Sea section and is currently negotiating the construction of two pipelines toward Turkey, but gas buyers are yet to be secured for the European section and beyond.

As for the construction of Yamal LNG, Novatek has indicated plans to move up the completion to 2018 for Train-2 and 2019 for Train-3. According to media reports, of the total export capacity of 16.50 million tonnes/year, the project's consortium members (Novatek, Total, CNPC) will account for about 60% of the long-term contract volume, and ultimate customers such as European power and gas companies are yet to be secured. Whether the progress in LNG projects will make up for the uncertainties in Russia's Europe-bound gas export pipelines must be closely monitored.



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