



SHIELD
by SOURCEREE



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December 2021's SHIELDWatch is all about partnerships. As we close out the year, our highlighted articles give a sense of hope for the future, success in solutions that have already been implemented, and challenges we will face in the new year. The COP26 summit resulted in the Glasgow Climate Pact, calling on countries to partner together to advance prototype technology and accessibility via the global supply chain of measures to achieve Net Zero Emissions (NZE) by 2050. General Motors and MP Materials led the way for success, by partnering together over the last year to create the first entirely US-based supply chain for electric vehicles, including rare earth element (REE) mining and production. And finally, in November this year, China passed a data privacy law that has already challenged the ability of the global supply chain to interoperate. 2021 is the year that turned "supply chain" into a buzzword, for the most part as a result of negatives – delays, shortages, price hikes. We here at Sourcing are invigorated by the silver lining the visibility Supply Chain Risk Management (SCRM) has received this past year, with an increase in partnerships and successful endeavors to enhance and protect US business presence on the global stage. Happy 2022, and thanks for taking this journey with us.

-- Adam Murphy, Sourcing President



Happy New Year 2022!

World Energy Outlook 2021

Laura Cozzi & Tim Gould
International Energy Agency
December 2021

In the lead up to COP26, the International Energy Association published their World Energy Outlook paper to outline the possibilities of the conference. In doing so, they outline scenarios based on the various steps and describe how each may play out by the year 2050.

The overall goal in total is the Net Zero Emissions by 2050 Scenario (NZE), followed by the Announced Pledges Scenario (APS), and the least desirable being the Stated Policies Scenario (STEPS). In order to meet any of the scenarios, a significant change will be required, and the NZE scenario – which is most desirable, will require all nations to work together, as a deviation from the plan could make the entire plan fall apart.

The outcome of the COP26 conference was the Glasgow Climate Pact of 2021, which “Calls upon Parties to accelerate the development, deployment and dissemination of technologies, and the adoption of policies, to transition towards low-emission energy systems, including by rapidly scaling up the deployment of clean power generation and energy efficiency measures, including accelerating efforts towards the phasedown of unabated coal power and phase-out of inefficient fossil fuel subsidies, while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognizing the need for support towards a just transition”

Select excerpts from the piece:

Solutions to close the gap with a 1.5 °C path are available – and many are highly cost-effective. The [World Energy Outlook] (WEO)-2021 highlights four key measures that can help to close the gap between today’s pledges and a 1.5 °C trajectory over the next ten years – and to underpin further emissions reductions post-2030. More than 40% of the actions required are cost-effective, meaning that they result in overall cost savings to consumers compared with the pathway in the APS. All countries need to do more: those with existing net zero pledges account for about half of the additional reductions, notably China. The four measures are:

- A massive additional push for clean electrification;
- A relentless focus on energy efficiency;
- A broad drive to cut methane emissions from fossil fuel operations;
- A big boost to clean energy innovation. This is another crucial gap to be filled in the 2020s, even though most of the impacts on emissions are not felt until later. All the technologies needed to achieve deep emissions cuts to 2030 are available. But almost half of the emissions reductions achieved in the NZE in 2050 come from technologies that today are at the demonstration or prototype stage. These are particularly important to address emissions from iron and steel, cement and other energy-intensive industrial sectors – and also from long-distance transport. Today’s announced pledges fall short of

key NZE milestones for the deployment of hydrogen-based and other low-carbon fuels, as well as carbon capture, utilisation and storage (CCUS).

Transitions can offer some shelter for consumers against oil and gas price shocks. Energy transitions can provide a cushion from the shock of commodity price spikes, if consumers can get help to manage the upfront costs of change. In a transforming energy system such as the NZE, households are less reliant on oil and gas to meet their energy needs, thanks to efficiency improvements, a switch to electricity for mobility, and a move away from fossil fuel-fired boilers for heating. For these reasons, a large commodity price shock in 2030 is 30% less costly to households in the NZE compared with in the STEPS. Reaching this point will require policies that assist households with the additional upfront costs of efficiency improvements and low emissions equipment such as electric vehicles and heat pumps.

The costs of inaction on climate are immense, and the energy sector is at risk. Extreme weather events over the past year have highlighted the risks of unchecked climate change, and the energy sector will feel the impacts. Today, the world's energy infrastructure is already facing increasing physical risks related to climate change, which emphasizes the urgent need to enhance the resilience of energy systems. We estimate that around one-quarter of global electricity networks currently face a high risk of destructive cyclone winds, while over 10% of dispatchable generation fleets and coastal refineries are prone to severe coastal flooding, and one-third of freshwater-cooled thermal power plants are located in areas of high water stress. In the STEPS, the frequency of extreme heat events would double by 2050 compared with today – and they would be around 120% more intense, affecting the performance of grids and thermal plants while pushing up demand for cooling. A failure to accelerate clean energy transitions would continue to leave people exposed to air pollution. Today, 90% of the world's population breathes polluted air, leading to over 5 million premature deaths a year. The STEPS sees rising numbers of premature deaths from air pollution during the next decade. In the NZE, there are 2.2 million fewer premature deaths per year by 2030, a 40% reduction from today.

In the NZE, there is an annual market opportunity that rises well above USD 1 trillion by 2050 for manufacturers of wind turbines, solar panels, lithium-ion batteries, electrolyzers and fuel cells. This is comparable in size to the current global oil market. This creates enormous prospects for companies that are well positioned along an expanding set of global supply chains. Even in a much more electrified energy system, there are major openings for fuel suppliers: companies producing and delivering low-carbon gases in 2050 are handling the equivalent of almost half of today's global natural gas market. Employment in clean energy areas is set to become a very dynamic part of labour markets, with growth more than offsetting a decline in traditional fossil fuel supply sectors.

MP Materials to Build U.S. Magnet Factory, Enters Long-Term Supply Agreement with General Motors

Business Wire

9 December 2021

General Motors (GM) has spent the past year building a sustainable, fully domestic supply chain for their plans to build Electric Vehicles (EV). Between Rare Earth Elements (REE), and semiconductor shortages, the market has been difficult to say the least – from skyrocketing prices on vehicles to long waits for computerized components. Now it has partnered with MP Material Corporation to obtain hundreds of thousands of rare earth metal alloys and magnets, all sourced from within the United States.

MP Materials is notable for owning and operating the only active and scaled rare earth production site in the United States. The main producers of the rare earth magnets used in electric motors are produced in China, Brazil, and India.

Select excerpts from the piece:

MP Materials Corp. (NYSE: MP) announced today that it will build its initial rare earth (RE) metal, alloy and magnet manufacturing facility in Fort Worth, Texas. The company also announced that it has entered a binding, long-term agreement with General Motors (NYSE: GM) to supply U.S.-sourced and manufactured rare earth materials, alloy and finished magnets for the electric motors in more than a dozen models using GM's Ultium Platform, with a gradual production ramp that begins in 2023.

In Fort Worth, MP Materials will develop a 200,000 sq. ft. greenfield metal, alloy and neodymium-iron-boron (NdFeB) magnet manufacturing facility, which will also serve as the business and engineering headquarters for its growing magnetics division, MP Magnetix. The facility will create more than 100 skilled jobs and be located in the AllianceTexas development owned and operated by Hillwood, a Perot company.

MP's initial magnetics facility will have the capacity to produce approximately 1,000 tonnes of finished NdFeB magnets per year with the potential to power approximately 500,000 EV motors annually. The NdFeB alloy and magnets produced will also support other key markets, including clean energy, electronic and defense technologies. The facility will also supply NdFeB alloy flake to other magnet producers to help develop a diverse and resilient U.S. magnet supply chain.

NdFeB permanent magnets are critical inputs to the electric motors and generators that enable EVs, robots, wind turbines, drones, defense systems and other technologies to transform electricity into motion and motion into electricity. Although development of permanent magnets originated in the United States, the U.S. has virtually no capacity to produce sintered NdFeB magnets today.

MP Materials (NYSE: MP) is the largest producer of rare earth materials in the Western Hemisphere. The Company owns and operates the Mountain Pass Rare Earth Mine and Processing Facility (Mountain Pass), the only rare earth mining and processing site of scale in

North America. MP Materials produced approximately 15% of the rare earth content consumed in the global market in 2020. Separated rare earth elements are critical inputs for the magnets that enable the mobility of electric vehicles, drones, defense systems, wind turbines, robotics and many other high-growth, advanced technologies.

China's Personal Information Protection Law (PIPL) and Its Affect on International Business



China's new Personal Information Protection Law (PIPL) puts tighter restrictions on companies and individuals that handle user data. This is a way to rein in Chinese tech giants like Tencent and Alibaba. The Peoples' Republic of China claims it will go hand in hand for national security interests and will curb data trading and theft. Overseas companies will be forced to abide by the law which requires a national security review and data, contracts submitted through the state, and requires employment of a data protection officer. Already a difficult environment to do business, this law makes it even more difficult especially for foreign companies. In recent months yahoo, and LinkedIn have left the country entirely. The law is like another law passed in Europe called the General Data Protection Regulation (GDPR).

Automatic Identification System (AIS) is the usual means of data collection for foreign and domestic analysts, banks, and logistics providers. The AIS is a satellite network, which would normally track the position of ships at sea, but becomes difficult to maintain connection near land due to interference. To make up for this loss, ground stations monitor AIS transmissions through radio frequency tracking and relay the data to the satellite network. The issue from mainland China is that the ground stations are not relaying the information because of the requirements imposed by the broad Data Protection Law.

According to multinational law firm Skadden, Arps, Slate, Meagher & Flom LLP, "Core data" under the DSL — broadly defined as any data that concerns Chinese national and economic security, Chinese citizens' welfare and significant public interests — is afforded the highest degree of protection and regulation. "Important data" is the next-most sensitive level of data, but its scope is left undefined. The relevant national, regional and sector authorities are expected to issue catalogs in due course of what counts as "important data."

The DSL applies to all data activities that take place in China as well as extraterritorially if the data activities are deemed to impair China's national security and public interest.

Ignore China's New Data Privacy Law at Your Peril

Matt Burgess

Select excerpts from the piece:

China's 989 million internet users are not accustomed to digital privacy—but that may be starting to change. On November 1, the country's first comprehensive data privacy law came into effect and boosted the protections given to hundreds of millions of consumers. The law will reshape how companies in China do business but will also send huge ripples around the world.

The new rules come in the form of the Personal Information Protection Law (PIPL), which places greater restrictions on what companies and individuals handling people's personal information can do with that data.

While the law may help stop unauthorized data trading and theft in China, it is also closely linked to the government's national security interests and builds upon recent cybersecurity and data security laws. Overseas companies that don't fall into line with PIPL or harm the national security of China may be placed on a blacklist, which could effectively ban them from processing Chinese personal data—opening the door to international tit-for-tat retaliation against businesses.

Companies operating in China now must employ a data protection officer, a move that has sent demand for such roles through the roof. Also cribbed from GDPR is the potential for huge fines: If a company breaches the law, it can be hit with fines up to 50 million yuan (\$7.8 million) or 5 percent of its annual revenue—roughly equivalent to GDPR's \$23 million and 4 percent thresholds.

PIPL expands on a requirement in China's cybersecurity law that companies store personal data within China. Telecoms, transport, finance firms, and other entities deemed to be critical information infrastructure already had to do so. But that requirement now applies to any company that collects a certain, still undefined amount of people's data. Following the departure of Yahoo and LinkedIn, Apple is now one of a small number of high-profile international tech companies with a presence in China.

As part of the security reviews, companies must submit the contract between themselves and the foreign partner receiving the data and complete a self-assessment. This includes laying out why data is being transferred out of China, the types of information being sent, and the risks of doing so. All of this combined could create some uncertainty for companies doing business in China, Gong says. "They will need to consider reshuffling their current business, management, and IT structure and the associated costs."

Off the grid: Chinese data law adds to global shipping disruption

Jonathan Saul & Eduardo Baptista

Select excerpts from the piece:

Ships in Chinese waters are disappearing from tracking systems following the introduction of a new data law in China, frustrating efforts to ease bottlenecks that are snarling the global economy, according to three shipping sources directly impacted.

China's Personal Information Protection Law, which came into effect on Nov. 1, has added to a raft of new rules designed to increase government control over how domestic and foreign organizations collect and export China's data.

Although there are no specific guidelines on shipping data in the regulations some domestic providers in China have stopped giving information to foreign companies as a direct consequence of the new rules.

The data is relied upon to provide information on cargo volumes and helps optimize logistics by predicting congestion so companies can make key decisions on shipping routes.

From Oct. 28 to Nov. 15 the level of terrestrial shipping data across all Chinese waters was estimated to have dropped 90% according to market intelligence and valuations provider VesselsValue. Mainland China is home to six of the world's ten largest container ports.

"With China being a major importer of coal and iron ore and one of the main container exporters globally, this decline in positional data could cause significant challenges concerning ocean supply chain visibility," head trade analyst Charlotte Cook said.

It was unclear how AIS users will be able to keep tabs on shipping movements if the data gaps continue.

The lack of tracking capability comes at a time when COVID-19 has already exposed the fragility of global supply chains used for everything from food to fashion.

An employee at Elane Inc, a Beijing-based company that owns an AIS data platform with around 2.5 million users, told Reuters that "all dealings with foreign entities were recently halted".

"The changes happened last month, we only supply data to domestic users now," said the employee, who asked not to be identified.

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Sourceree's SHIELD program is a comprehensive supply chain risk management (SCRM) solution designed to help answer questions about supply chain disruptions and risks, particularly foreign investment.

- Software platform for on-demand supply chain risk assessments and financial intelligence data

- Analytical Support

- Business intelligence reports on critical suppliers