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OCTOBER 2020

ENERGY

INDUSTRY REVIEW

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Laying of the Pipeline that
Will Carry Black Sea Gas Begins

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Managing Director of
Siemens Energy România

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O&G to Tackle Climate Change

The oil and gas industry is facing increasing demands to clarify the implications of energy transitions for their operations and business models and to explain the contributions they can make to reducing greenhouse gas emissions and to achieving the goals of the Paris Agreement, warned IEA in its World Energy Outlook special report for 2020.

The increasing social and environmental pressures on many oil and gas companies raise complex questions about the role of these fuels in a changing energy economy, and the position of these companies in the societies in which they operate.

But the core question, against the backdrop of rising GHG emissions, is a relatively simple one: should today's oil and gas companies be viewed only as part of the problem, or could they also be crucial in solving it?

As the industry is facing challenging times, we set out a few thoughts to help oil and gas companies navigate the current landscape.

Earlier this year, Britain's Oil and Gas Authority (OGA) Chairman Tim Eggar pointed out the challenges and opportunities of the energy transition for the oil and gas sector. He proposed a strategy and urged the industry to become the leader in "developing some of the solutions to tackling climate change, rather than continuously being seen as the problem or the blocker". This would be a good example to follow.

To realize this vision, the OGA recommends a new approach, including accelerating progress on selected pioneering energy integration projects, leveraging oil and gas assets and

capabilities essential for CCUS, improving data availability, quality, and access through coordinated efforts across government and relevant industries to enhance visibility of cross-industry opportunities, accelerating planning and regulatory activities.

A simple example: in Romania, the oil & gas industry has urged the Government to take immediate measures to unlock the digitization process, according to an open letter addressed to the Prime Minister by the Oil and Gas Employers' Federation (FPPG).

"Romania's digitization is presented by the Government of Romania, on each occasion, as a priority axis of the Government program and a driver of economic development. However, the reality shows that the digitization of the Oil and Gas Industry in Romania can only be achieved by updating the legislative framework to the technological progress," said Franck Neel, FPPG President.

Companies in the oil industry have reiterated the importance of declassifying data and information, action without which digitization is inaccessible to Romanian companies. We refer to technologies such as 'Cloud', 'Big Data' and 'Cloud Computing', which involve data processing in 'Cloud'-type data centres on the territory of the European Union.

The challenge of the energy transition cannot be denied, and experts say that this should have been begun much sooner, but the oil and gas industry in Romania is still navigating through tough waters.

"We are at the start of a new energy paradigm. It is important to adapt together to changes brought by it, in an integrated and flexible manner, for a greener and socially sustainable future. The 2030 Agenda for Sustainable Development and the European Green Deal are opportunities and challenges alike. Together we have the opportunity to develop new energy ecosystems, increase the degree of network interconnection, to decentralize, to invest in people and in digitization, to reach the goal of climate neutrality," said Lucian Petrica Rusu – State Secretary, General Secretariat of the Government of Romania, in the opening of the Energy Tech Day 2020 event.

Let's see what is coming up next. ■

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The Development of Strategic Projects in the Energy Sector

Dan Dragos Dragan - Secretary of State in the Ministry of Economy, Energy and Business Environment (MEEMA), attended a meeting with the Secretary of State in the Ministry of Foreign Affairs, Cornel Feruta, and representatives of EximBank. The discussions were held having as topic the new projects proposed on the list of the Three Seas Initiative (3SI), in the MEEMA area of responsibility, which will be promoted on October 19 this year, within the Three Seas Initiative Summit to be held in Tallinn, Estonia. The fifth 3SI Summit will take place in Tallinn, following to be attended by heads of states and governments of the 12 countries located between the Baltic, Black and Adriatic Seas - Estonia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Austria, Croatia, Romania and Bulgaria.

Dan Dragos Dragan presented the projects in the energy sector proposed to be promoted and funded from the 3SI Fund. The official pointed out the relevance of these projects in a national and regional context in ensuring the balancing of the energy system to strengthen electricity supply safety and to integrate renewables in line with the European Green Deal.

Competition Council Authorized Outsourcing of Services by OMV Petrom

The Competition Council has authorized the transaction through which OMV Petrom outsources to J. Christof E&P Services and Christof Private Firefighting Services some general surface operations and services related to the activities of extraction and production of oil and natural gas, together with the assets and employees that serve them. In this regard, OMV Petrom organized a Procurement Procedure for surface and transportation services, operation and minor maintenance services, fire and rescue services, field operation services, facility operation services and treatment facility operation services for five lots in Romania: respectively Oltenia Production Area, West Muntenia Production Area and Moesia Production Area, Muntenia Production Area, Moldova Production Area and Crisana Production Area.

The consortium consisting of J. Christof E&P Services and Christof Private Firefighting Services was designated the best ranked bidder for the first two lots put up for tender, following to sign with OMV Petrom a framework agreement.

New Recharging Stations for Electric Cars in OMV and Petrom Filling Stations

OMV Petrom and Enel X Romania, member of Enel X, the division of advanced energy services of Enel Group, will install 10 fast recharging stations for electric cars, in OMV and Petrom filling stations, during the next months.

The fast recharging stations will be installed in OMV and Petrom filling stations covering approximately 380 kilometres on the main roads in Romania, connecting cities from the east, centre and west of

the country. In this way, OMV Petrom and Enel X continue their plans to develop the recharging stations network in Romania, thus encouraging the customers' road mobility by electric cars.

All recharging stations for electric cars installed within the partnership will have an available power of minimum 50kW, and a recharging cycle for 80% of a car battery capacity will be done in approximately 25 minutes.

"We believe that the answer to our customers' mobility needs is a mix of fuels and alternative solutions. Through this partnership, we contribute to the development of the national recharging infrastructure to enable the transit of electric cars in Romania. We estimate that, by the end of 2021, over 40 recharging stations for electric cars will be installed in our regional network," said Radu Caprau, member of OMV Petrom Executive Board, responsible for Downstream Oil.

Prunisor-Orsova-Baile Herculane-Jupa Gas Pipeline to Be Ready by 2024



The gas transmission pipeline on Prunisor-Orsova-Baile Herculane-Jupa direction is a project of strategic national importance and will be ready by 2024, said Transgaz General Manager Ion Sterian during an event for the presentation of the project, in Orsova, together with PM Ludovic Orban, Economy and Energy Minister Virgil Popescu and Transport Minister Lucian Bode.

“Mehedinti County is the last one in the country with the shortest high-pressure gas transmission pipeline, of 54 kilometers. (...) There is fantastic potential here in terms of development of economic activity, processing of resources. This project, which is a reality and a certainty, has become of national strategic energy importance. (...) This pipeline will close a ring and have a double supply source. From Jupa area it will be linked to BRUA, an important gas pipeline for increasing the national security of gas supply. The second supply source is from the Filiasi-Strehaia pipeline and the 54 kilometers that come to Turnu Severin. Having this advantage, with both sources, we expect that at the end of 2022 the execution of the pipeline will begin, so that in 2024 this entire pipeline

will be executed. Transgaz has the money provided in the budget for the development of gas transmission networks and for the connection of localities,” said Ion Sterian (Photo).

Currently, in the northern part of Mehedinti County and in the center and south of Caras Severin County there are no gas supply pipelines. Firewood, coal, and liquefied gas are used for heating the homes and preparing food. These fuels create discomfort, pollute the environment, and contribute to deforestation. Ensuring utilities in the rural environment will attract new investors, create new jobs, and consequently lead to the economic and social development of the two counties. To improve the living conditions of inhabitants, as well as to fulfill the criteria for reaching the European standards of life, gas supply in this area is an essential objective.

By building this pipeline, gas supply can be ensured for a number of around 15,500 household consumers, 94 public institutions and approximately 113 companies in Mehedinti county, as well as approximately 12,000 household consumers, 136 public institutions and approximately 231 companies in Caras Severin County.

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New Battery Materials Plant in Finland

Bilfinger supports BASF Battery Materials Finland Oy in building a plant for precursor cathode active materials (pCAM) in Harjavalta, Finland. Cathode active materials (CAM) are used as a base material for battery cell manufacturing. Bilfinger Industrial Services is installing around 4,000 tons of steel structures for the production building, ancillary buildings, and piping bridges at the plant. Bilfinger's experts will also prefabricate and install piping systems, install equipment and machinery, and carry out insulation and painting work. Bilfinger began its work in May 2020 and is expected to continue the project until September 2021.

"The growing need for mobility and climate protection creates many challenges, but at the same time provides vast opportunities to develop innovative technologies that address them, as demonstrated by our customer BASF," says Dr. Friedrich Schneider, CEO at Bilfinger Industrial Services GmbH. "We are helping our customers solve the challenges and take advantage of these opportunities with a comprehensive range of services."

In the future, BASF wants to supply battery materials from European, resource-friendly production sites for around 400,000 fully electric vehicles every year.

bp and Equinor to Develop Offshore Wind Projects in US

bp and Equinor announced the formation of a new strategic partnership to develop offshore wind projects in the US. This includes the development of existing offshore wind leases on the US East coast and jointly pursuing further opportunities for offshore wind in the US.

"This is an important early step in the delivery of our new strategy and our pivot to truly becoming an integrated energy company. Offshore wind is growing at around 20% a year globally and is recognized as being a core part of meeting the world's need to limit emissions. It will play a vital role in allowing us to deliver our aim of rapidly scaling up our renewable energy capacity, and in doing so help deliver the energy the world wants and needs," Bernard Looney, bp's chief executive, said.

As well as forming the new strategic partnership, bp will purchase a 50% interest in both the Empire Wind and Beacon Wind assets from Equinor. bp has agreed to pay Equinor USD 1.1 billion. The partnership will leverage capability and experience from both companies. Equinor will remain operator of the Empire and Beacon projects in the development, construction, and operations phases.

The agreement comes a month after bp announced its new strategy, including aims to increase its annual low carbon investment 10-fold to around USD 5 billion a year and grow its developed renewable generating capacity from 2.5 gigawatts (GW) in 2019 to around 50GW by 2030.

ArcelorMittal's New Carbon-Neutral Commitment

CFO Aditya Mittal of ArcelorMittal, the world's largest steel company, pledged to achieve carbon neutrality company-wide by 2050.

"As the largest steel company in the world, ArcelorMittal is responsible for close to one percent of all climate pollution. We welcome ArcelorMittal's pledge to become carbon neutral by 2050 as an important step toward addressing the outsized impact of the steel industry and a critical victory for climate and the environment.

Steel is seven percent or more of all climate pollution. As with any corporate commitment, though, the devil is in the details. We hope to continue to engage with the company directly between now and the end of 2020 as they draft a more detailed plan for achieving carbon neutrality by 2050," Margaret Hansbrough, Mighty Earth campaign director, had this to say in reaction.

"We need carbon neutrality today from big polluters like ArcelorMittal

and net zero by 2050 with ambitious 2030 targets based on the remaining carbon budget -- likely in the range of 49-65 percent emissions reductions. Out of sync models like those the IEA is currently providing would basically maintain business as usual through 2030 for steel and other heavy industry. Today, Mr. Mittal signaled his company's willingness to lead, now it's time for real action from them and the rest of the industry," Margaret Hansbrough concluded.



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Japan's First Offshore Wind Auction

Japan is preparing its first offshore wind auction, estimated to start within the next months, as the country aims to develop at least 10GW of wind capacity by 2030. The Japanese government is proactively diversifying its energy mix and has introduced many related initiatives. The country has many offshore wind farms in the pipeline, with the first commercial-scale project anticipated to enter operation in 2022.

Japan has sped up the adoption of renewable energies in the recent years and passed several legislations that established generation targets. On July 3, 2018, the Japanese government unveiled 'the Fifth Strategic Energy Plan' that calls for expanding the share of renewables in the country's energy mix from 16% at the time to 22-24% by 2030. In the target year, the contributions of hydro, solar, biomass, wind, and geothermal energies to the domestic electricity generation should come to 9.2%, 7%, 4.6%, 1.7%, and 1.1% respectively.

The Japanese government announced 11 sites designated for wind power auctions in July 2019. The locations were selected because of their strong development potential. The first round of wind power auctions is scheduled for the second half of this year.

Ørsted's Hornsea Two to Generate 1.4 GW of Clean Energy

Ørsted's Hornsea Two will surpass its predecessor Hornsea One by generating 1.4 GW of clean energy once complete in 2022. Offshore works for what will become the world's largest offshore wind farm are set to ramp up in the coming weeks.

Monopile works are due to commence at the wind farm location 89 km off the Yorkshire coast in the UK with DEMA's offshore installation vessel 'Innovation'. Besides the 'Innovation', 'Pacific Orca' will also begin works on location next year to support construction. Both are heavy lift jack up vessels which have legs that can securely fix the ship to the seabed, raise the vessel from the water whilst onboard the crane lifts and manoeuvres the heavy foundation components.

In total, 165 monopiles and transition pieces will be installed at sea in preparation for the site's 8.4 MW turbines. With a height from sea level to blade tip of 204 m, the turbines will also feature new 82 m long blades which are currently being fabricated at the Siemens Gamesa Renewable Energy blade factory in Hull.

Georgia Now Has State-of-the-art Energy Efficiency

After six years of work, starting with engagement with the EBRD, Georgia now has state-of-the-art energy efficiency laws that will contribute to its green economy transition. They will enable the country to make energy savings of 14 per cent by 2025, helping it meet its international obligations in combating climate change, increasing its energy security and strengthening its energy links with the European Union.

The benefits go further. The two new pieces of legislation – the

Law on Energy Efficiency and the Law on Energy Performance of Buildings, passed in May – will also help improve energy performance standards for new constructions and building retrofits in line with EU standards.

Getting them on the statute book is an important milestone for Georgia in meeting its requirements under the Deep and Comprehensive Free Trade Agreement (DCFTA), as well as its membership of the Energy Community, an international

agreement that brings the European Union and its neighbours together to create a pan-European energy market.

The potential for improving energy efficiency in Georgia is huge. Fossil fuels are the main source of greenhouse gas emissions, in the country and account for up to 75 per cent of primary energy supply. The payoffs are also attractive. Energy efficiency helps to reduce greenhouse gas emissions, curb the demand for energy imports, and lower costs on a household and economy-wide level.

New Fuel Cell Technology to Reduce Emissions from Shipping by 40 to 100%



New and flexible fuel cell technology can reduce emissions from shipping by 40 to 100%. Partners from shipping, R&D and oil and gas are now constructing a pilot system that can use different types of fuel. The system will first be tested at the Sustainable Energy catapult centre in Norway before installation on board a chemical tanker.

The new technology opens for many different types of fuel, including green ammonia and LNG. With this flexibility, vessels can choose fuel according to availability. The main partners in the project are Odfjell, Prototech, Wärtsilä and Lundin Energy Norway. Odfjell has leading expertise in global shipping, Prototech in fuel cell technology, Wärtsilä in maritime technology and energy, and Lundin Energy Norway in oil and gas.

The project aims to develop a technology that can provide emission-free operation over long distances. Battery solutions are currently not suitable for operating ships that sail long distances, the so-called 'deep-sea' fleet. This fleet consists of more than 50,000 ships globally and thus constitutes a big share of international shipping. It is difficult to achieve the goal of climate neutrality without finding solutions for this segment.

The unique feature of the new technology is its high energy efficiency and the flexibility that enables substantial emission reductions already from day one with the use of currently available infrastructure for LNG – while also preparing for emission-free operation in line with the development of value chains and infrastructure for sustainable fuels in the years to come.



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Hywind Tampen - World's First Renewable Power Project for Offshore Oil and Gas

Hywind Tampen is an 88 MW floating wind power project intended to provide electricity for the Snorre and Gullfaks offshore field operations in the Norwegian North Sea. It will be the world's first floating wind farm to power offshore oil and gas platforms. It will also be the world's largest floating offshore wind farm and an essential step in industrialising solutions and reducing costs for future offshore wind power projects.

Hywind Tampen will be a test bed for further development of floating wind, exploring the use of new and larger turbines, installations methods, simplified moorings, concrete substructures and integration between gas and wind power generation systems.

The floating wind farm will consist of 11 wind turbines based on one of Equinor's floating offshore wind technologies, Hywind. The wind farm will have a combined capacity

of 88 MW and is estimated to meet about 35% of the annual power demand of the five Snorre A and B, and Gullfaks A, B and C platforms. In periods of higher wind speed this percentage will be significantly higher. The wind power solution will help reduce the use of gas turbine power for the Snorre and Gullfaks offshore fields, while also offsetting 200,000 tonnes of CO₂ emissions and 1000 tonnes of NO_x emissions per year.

TechnipFMC to Reduce Total Site Emissions at Shell's Moerdijk Plant

TechnipFMC has been awarded a 'significant' contract by Shell Moerdijk for the Engineering, Procurement, and module Fabrication (EPF) for proprietary equipment and related services for eight ethylene furnaces at the Moerdijk petrochemicals complex in the Netherlands. The new furnaces will utilize TechnipFMC's innovative multi-lane radiant coil design and will replace 16 older units without reducing capacity at the facility, while increasing energy efficiency and reducing greenhouse gas emissions. This upgrade is expected to reduce Shell Moerdijk's annual CO₂ emissions by about 10 percent.

Shell announced earlier this year its plans to replace 16 older furnaces with eight new ones to cut emissions. Work is expected to be completed in 2025.

"We continue to invest in innovation, even in difficult economic times. This investment at Moerdijk contributes to the reduction of carbon emissions from our manufacture of chemicals and to Shell's ambition of becoming a net-zero emissions energy business by 2050 or sooner. We aim to achieve our ambition in step with society," Richard Zwinkels, general manager Shell Moerdijk commented.

New Plant to Remove Carbon Dioxide from Air in Iceland

Climeworks has signed ground-breaking agreements with both Carbfix, carbon storage pioneers, and ON Power, the Icelandic geothermal energy provider, to lay the foundation for a new plant that will significantly scale up carbon removal and storage in Iceland. The new plant will be able to permanently remove 4000 tons of carbon dioxide from the air per year.

The agreements set down an important milestone in the fight against climate change. The collaborative efforts of these agreements are particularly important as the scale-up of carbon removal is essential to reach the goals of the Paris Climate Agreement, and the continued development of these technologies could prove to be a game-changer in the fight against climate change.

"This collaboration with ON and Carbfix marks a big step forward in reducing the CO₂ in our air. The site in Iceland provides ideal conditions: the supply of renewable energy and a safe and natural storage space for our air-captured carbon dioxide. We are proud, together with our partners, to bring the permanent and safe removal of carbon dioxide from the atmosphere to the next level," Jan Wurzbacher, co-founder and co-CEO of Climeworks said.



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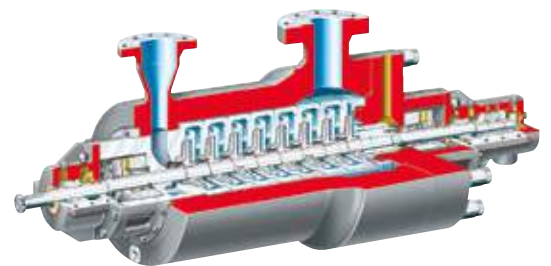
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SapuraOMV Brings on Stream Bakong 1st Production from SK408 Gas Fields

SapuraOMV Upstream announces stable production from its operated Bakong gas field project under the SK408 Production Sharing Contract (PSC), which was delivered within budget. The production phase started in June 2020. This follows the successful production from SapuraOMV's Larak gas field which started in December 2019 and the start-up of the Shell-operated Gorek field in May 2020. With this first production from Bakong field,

Phase 1 of the SK408 development is now entirely on stream.

The SK408 gas fields are part of the discoveries made by SapuraOMV Upstream in a drilling campaign in 2014. The Phase 1 development of SK408 Production Sharing Contract (PSC) aims to commercialize the gas reserves from Gorek, Larak and Bakong fields, which will help meet the growing gas demand in Asia. Under a long-term agreement with PETRONAS, SapuraOMV and its SK408 partners,

Sarawak Shell Berhad and PETRONAS Carigali Sdn. Bhd. will supply gas from these fields to the PETRONAS LNG complex in Bintulu, Sarawak.

“With the successful start-up phase, we are setting a further step in strengthening the gas focus in our production portfolio and it is a strong signal in our OMV core region Asia-Pacific,” Johann Pleininger, Executive Board Member responsible for Upstream and Deputy Chairman of OMV stated.

Grandpuits Refinery Converted into a Zero-crude Platform

Within the framework of its net zero strategy, Total will convert its Grandpuits refinery (Seine-et-Marne) into a zero-crude platform. By 2024, following an investment totalling more than EUR 500 million, the platform will focus on four new industrial activities: Production of renewable diesel primarily intended for the aviation industry; Production of bioplastics; Plastics recycling; Operation of two photovoltaic solar power plants.

Meanwhile, crude oil refining at the platform will be discontinued in the first quarter of 2021 and storage of petroleum products will end in late 2023. Operations at service stations and airports in the Greater Paris region will not be affected: they will be supplied by the refineries at Donges- currently undergoing a EUR 450 million modernization - and Normandy.

Total Acquires London's Largest EV Charge Network

Total has signed the acquisition of 'Blue Point London' from the Bolloré Group. With this transaction, Total is taking over the management and operation of Source London, the largest electric vehicle charging network citywide, which includes more than 1,600 on-street charge points.

Launched in 2010, the current Source London network has been developed in cooperation with the London Boroughs and currently represents more than half of the charge points in operation in the capital city. Source London growth perspectives are supported by the City of London's ambition to be a zero-carbon city by 2050, notably with the aim of increasing tenfold the number of charge points within five years.

Total is also committed to powering this charging network with electricity 100% guaranteed from renewable sources, to be supplied by its subsidiary Total Gas & Power Limited.

Already active in the installation and operation of charge points networks in the Metropolitan Region Amsterdam (Netherlands) and the Brussels-Capital Region (Belgium), this acquisition in the United Kingdom reinforces Total's position as a key player in electric mobility in Europe. The Group is thereby pursuing its development in major European cities, in line with its ambition of operating more than 150,000 electric vehicle charge points by 2025.

First-Ever Integration of Managed Pressure Drilling and Automated Well Control Technology



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Weatherford International has signed a Memorandum of Understanding (MoU) with Safe Influx, the world's only provider of Automated Well Control technology. Under the MoU, the companies will cooperate globally to focus on revolutionising well integrity during the construction phase by bringing to market the first ever integration of Managed Pressure Drilling (MPD) solutions and Automated Well Control technology.

"This unprecedented collaboration will leverage digitalization and automation to enable operators to achieve more from their projects in the safest way possible, while having the confidence their wells will be drilled and constructed with the highest level of integrity available in the market today," said Kevin

Fisher, Vice President of Managed Pressure Drilling, Weatherford.

As part of the MoU, Safe Influx will combine its Automated Well Control technology with Weatherford's comprehensive portfolio of MPD products and services. This industry first integrated offering will automate the mitigation of drilling hazards, while drilling in the most efficient manner possible. This cooperation creates market-expansion opportunities, allowing both companies to expand their capabilities and resources.

"Safe Influx Automated Well Control technology has a revolutionary role in the Managed Pressure and conventional drilling markets by dramatically reducing our industry's exposure to human factors," said Bryan Atchison, Co-founder and Managing Director, Safe Influx.

ONE full range of diesel/ gas generator sets tailored to every market. Trusted to power the places that drive your economy, **Caterpillar** generators sets are designed to deliver clean energy in the harshest environments.

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EBRD Sets Path to Resilient, ‘Majority Green’ Future

The European Bank for Reconstruction and Development (EBRD) has embarked on a path to a sustainable, ‘majority green’ future as it prepares to guide its regions to a robust recovery from the coronavirus pandemic. At its 2020 Annual Meeting, the EBRD’s Board of Governors approved a new Bank strategy for the next five years that will see over 50 per cent of its annual investments dedicated to green finance by 2025.

This year, the EBRD has swung

all of its resources behind helping its 38 economies deal with the immediate impact of the pandemic, rolling out a EUR 21 billion support package primarily aimed at helping firms to meet liquidity needs and at keeping vital services flowing.

“We need to preserve the progress made so far in our countries’ transitions. We also have to move even faster towards a more resilient and more sustainable future,” said Acting EBRD President Jürgen Rigtterink

as the strategy was put forward to the Governors, who represent the EBRD’s 71 shareholders.

Under the new strategy, the EBRD also aims to promote equality of opportunity through access to skills and employment, finance and entrepreneurship and support for women, young people and under-served communities. It will also accelerate digital transition, unleashing the power of technology to bring about change for the better.

Vattenfall’s First Floating Solar Farm

Vattenfall has opened its first floating solar farm in Gendringen, the Netherlands. The solar farm, with a capacity of 1.2 megawatt, was built on the site of the sand and gravel extraction company Netterden. This means that from now on, half of the annual energy consumption of the electric sand dredge and the associated sorting and processing equipment will be generated sustainably on site.

Space for building solar farms is scarce in the Netherlands. A possible solution to this is to construct floating solar farms, for example on ponds and pools resulting from sand and gravel extraction. An additional benefit is that the water cools the panels naturally, which increases their efficiency compared to land-based solar panels. As the prime contractor, Vattenfall was responsible for building the floating solar farm, while Netterden provided the funding.

“Netterden’s vision on socially responsible business was the main reason for launching this project. Green power is a natural part of this.

LUKOIL and KazMunayGas Sign Agreement on Al-Farabi Project

President of LUKOIL Vagit Alekperov and Chairman of the Management Board of JSC NC KazMunayGas (KMG) Alik Aidarbayev signed an agreement on the Al-Farabi Project (formerly I-P-2 license block) in the Kazakh Sector of the Caspian Sea.

The agreement defines rights and obligations of LUKOIL and KMG as future license holders under the project. This is a next step after the principles agreement, concluded in June of 2019. The parties intend to proceed with signing a contract on exploration and production of hydrocarbons, that will come into force as soon as KMG receives the license and the parties close the deal to establish a joint venture with 50.01% (KMG) and 49.99% (LUKOIL) shares.

As part of LUKOIL and KMG strategic cooperation, the companies are partners in major projects – Karachaganak, Tengiz, Kumkol, and in oil transportation project of Caspian Pipeline Consortium. The Ministry of Energy of the Republic of Kazakhstan, KMG and LUKOIL signed an agreement to explore and produce hydrocarbons at Zhenis offshore block on April 1, 2019.

Al-Farabi license block is in the Kazakh Sector of the Caspian Sea, 100 – 130 kilometres away from the shore with the water depth of 150-500 meters. The license block covers over six thousand square kilometres.

World's First Net Zero Industrial Cluster



ZEROCARBON
HUMBER



Equinor, together with 11 other companies and organisations, has submitted a joint proposal to create a low carbon cluster in the Humber, the UK's largest and most carbon-intensive industrial region.

The application by the Zero Carbon Humber (ZCH) Partnership is a first step to creating the world's first net zero industrial cluster by 2040 and will support clean growth in the north-east of England. The bid, announced today, for Phase Two funding from the UK Government's Industrial Strategy Challenge Fund, builds on a successful application for Phase One funding which was announced in April.

The ZCH Partnership includes Equinor, Associated British Ports,

British Steel, Centrica Storage Ltd, Drax Group, Mitsubishi, National Grid Ventures, px Group, SSE Thermal, Saltend Cogeneration Company Limited, Uniper, and the University of Sheffield's Advanced Manufacturing Centre (AMRC).

"We are proud to be a leader of Zero Carbon Humber, partnering with a broad group of forward-looking companies. This proposal can bring tremendous benefits to the Humber region, protecting industries, creating jobs, promoting economic growth, and reducing emissions. Our bid demonstrates the kind of ambitious action that is needed to for the UK to achieve its net zero carbon target by 2050," says Al Cook, Equinor executive vice president and UK country manager.

- Natural gas compression equipment with helical compressors.
- Electric centrifugal compressors for natural gas or turbine gas compressors.
- Centrifugal air compressors and centrifugal air blowers.
- Co-generative power plants producing thermal and electric energy for oil extraction.
- Gas expansion energy recovery using helical expanders and its transformation in electrical energy.
- Automation equipment for turbomachinery.
- Applied research in production regarding manufacturing processes for complex shaped forms and low rigidity parts (rotors, pinions, bladed stators, coolers, cases).
- Maintenance and service.
- Spare parts for turbomachinery.

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Institute for Gas Turbines - COMOTI**
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EU Strategy for Digital Finance

THE PREMISES OF A REVOLUTION FORETOLD

Recently, the European Commission (the 'Commission') published a package to support digital finance for Europe. This package also includes the Commissions' strategy in this field, which sets out the four priorities in this respect.

This strategy comes in the context of the new reality of 2020, marked by the COVID-19 pandemic that accelerated the adoption of digital solutions in almost all areas, including financial services. Largely based on Fintech solutions, these digital solutions have helped credit institutions control the impact of the pandemic and strengthen their relationship with customers.

In the last six months, banks announced significant investments in this area, including Romania, either by launching new digital solutions, or improving existing ones. It should be noted that this approach comes at a time when the IT field – which, until recently, had a rather supporting role in the life of a company – has become a key part in the innovation and expansion process of companies in recent years.

The four priorities of the EU strategy for digital finance

The Commission's strategy envisages four priorities for the digital transformation of various financing methods in Europe. It is worth mentioning that the success of this process, given its complexity, requires cooperation at the level of several competent European institutions.

• Removing fragmentation in the Digital Single Market

In order to enable European consumers' access to cross-border services and to help European financial companies step up their digital operations, the Commission is considering a number of measures to amend the legal framework on anti-money laundering and counter-terrorism financing and the e-IDAS Regulation¹, as well as the development of guidelines by the European Banking Authority and other European supervisory authorities. Simultaneously, relevant aspects concerning data protection will be clarified with support from the European Data Protection Board. The aim of these measures is to ensure the basis for the legal framework to be implemented which will allow the use of interoperable European identity solutions for 'on boarding'² by all European users, by 2024.

By 2024, the Commission also envisages measures regarding passporting³, and the passporting principle is to be applied in all those areas with strong potential for digital finance. For example, provisions similar to those regarding passporting in the Crowdfunding Regulation and in the proposed Markets in Crypto-assets Regulation could be used to regulate other fields, for example in the context of assessing prudential regulation of non-bank lending.

¹ Regulation (EU) No. 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC.

² The possibility of new customers to access financial services quickly and easily.

³ The principle in the single market according to which consumers and companies should have access to cross-border services provided by firms established and supervised in another Member State, in line with commonly agreed rules.

Other issues to be addressed under this priority direction also include certain regulatory issues in the area of payment services (for example, practices where foreign IBAN account numbers are refused), as well as the establishment of a platform for digital finance at EU level.

• Adapting EU regulatory framework to encourage and facilitate digital innovation, considering the consumers' rights and interests as well as market efficiency

Blockchain technology, crypto-assets and artificial intelligence are solutions of great interest for the evolution of various finance methods in Europe. As a result, the Commission proposes a regulation for crypto-assets, and guidelines to be developed in the coming years at the level of competent European supervisory authorities to clarify the application of existing artificial intelligence legislation, from the point of view of the supervisory obligations of these authorities.

The Commission also considers promoting the use of cloud infrastructure, as well as software investments. In this respect the Commission proposes the creation of a European cloud services marketplace by the end of 2022 to facilitate access to alternative cloud service providers, including in the financial sector.

At the same time, to promote software investments, the Commission will shortly adopt regulatory technical standards developed by the European Banking Authority to facilitate digital transformation in the banking sector.

• Establishing a European common space to promote data-driven innovation, including by facilitating access to information and information sharing in the financial sector

In order to establish such a common space, the Commission envisages measures such as facilitating real-time access to all public information regulated by the financial services legislation or promoting the use of new digital solutions in the reporting and supervision activity in the financial sector. Finally, the Commission proposes the development of the 'open finance'⁴ concept,

⁴ The sharing and use of customer-permissioned data by banks and third-party providers to create new financial services.

by setting out a wider finance framework by mid-2022 together with reviewing and assessing the Payment Services Directive⁵.

• Addressing new challenges and risks associated with digital transformation, considering the "same activity, same risk, same rules" principle

The Commission considers to adjust by mid-2022 the legal framework applicable to financial services as regards consumer protection and prudential rules, so as to protect the interests of end-users of digital finance, to safeguard financial stability, to protect the integrity of the EU financial sector and ensure a level playing field.

Conclusions

The digital finance strategy for the EU sets forth a series of objectives and measures for the coming four years which could radically change the present finance method, irrespective of the financing source. Nonetheless, together with the digital finance strategy and in line with it, the Commission published several legislative proposals aiming, among others, at the regulation of crypto-assets, a pilot regime for market infrastructure based on distributed ledger technology (DLT), digital operational resilience or changes to the directives regarding financial services in the European Union.

The reality of the last few months showed us that digital transformation is a necessity, even though not long ago it was only a medium- or long-term objective, for an adaptable and strong economic environment.

Perspectives

As far as the local market is concerned, we'll have to see the Romanian legislator's ability to implement in due time the new regulations and changes to existing regulations which are announced for the forthcoming years at EU level, so as to keep up with the new digital reality.

⁵ Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC.



Covid-19 Fiscal Recovery Packages

We continue with the opinions of specialists relating to the Post-Covid Crisis, resorting to two names: Nicholas Stern and Joseph Stiglitz. These are the authors of the paper considered historic: 'The Stern Report', Joseph Stiglitz being awarded the Nobel Prize in Economics. The report was adopted ad-litteram by the United Kingdom Government. Rescue programs, but also economic stimulation programs are expected by most states. Necessarily to implement them with the hope of mitigation/reduction of effects of the pandemic, programs which, however, make us wonder whether the progress recorded so far in terms of climate change will be accelerated or, why not, even delayed. The question has a symbolic value, like the question of humanity: "To be or not to be?". The issue is somewhat fundamental, being launched by the group of experts, so more than real, the UK building strategies since 2006. In fact, the report defined above estimates the economic impact of climate change which, as we all know, has been talked about, is being talked about and will be talked about for a long time to come. The preliminary conclusion of the University of Oxford, which is expected to be published in the famous 'Oxford Review of Economic Policy' is not far from Polichinelle's

secret, according to which the coronavirus pandemic could be our last possibility to prevent the catastrophic climate change!

Researchers had scientific talks with over 230 experts - directors of central banks, ministry officials in the field of finance, most recognized economists from the G20 countries, on performance issues, strategic information etc. Therefore, about 25 main tax measures were outlined, all regarding the relationship between the speed of recovery of economies in these states, about the economic growth thereafter, about the potential climate impact, depending on the needs and complex desires of the countries themselves. Measures to stimulate green energy were accompanied by axiomatic options in order to achieve the best balance of the cost-benefit ratio in terms of public spending and positive effects found in the country's economy, detailing, for example, up to solving the issue of jobs and labour force, issues to be addressed after the pandemic. Experts recommend investments in transport using fuels leading to reduced carbon emissions, such as train, subway, with infrastructures ensuring rapidity of the loading-unloading process (goods, persons), electric vehicles etc. Regarding research having as theme clean energy, it would be desirable to insist on electrochemical charging of accumulators/batteries, in parallel with the underground storage of carbon dioxide and, finally, the decarbonization of electrical processes. From the point of view of economists, the stimulating anti-pandemic packages are a single opportunity to improve climate transformation based on a legislation leading, implicitly, to fair decisions. The ideas are included in a paper dedicated to research and expertise named 'Will Covid-19 fiscal recovery packages accelerate or retard progress on climate change?', paper by the University of Oxford. This study shows that the rescue and economic stimulation packages help kill two birds with one stone. On the one hand, supporting the global economy, on the other hand reducing up to 'zero' of poisoning emissions in the atmosphere. Or isolating part of the Earth in a system based on fossil fuels from which no one can ever come out, word emphasized by the authors of the study.

Basically, without just policies, with just targets, the major economic experts say, we could go from bad = Covid-19, to worse = fiery global warming!

Kraftanlagen Romania S.R.L. was founded in 2007 as a subsidiary of the German company Kraftanlagen München GmbH and expanded its local services successfully in 2016 with IPIP S.A.

We engineer, design and build complex piping and plant systems for the chemical and petrochemical industry. Our technical competence covers also requirements for new plants and maintenance for refinery, extraction & production and industrial plants.

The range of our solutions:

- Feasibility, process studies
- Basic design and front end engineering design
- Multidisciplinary detailed engineering
- Technical documentation for authorities
- Project management
- Technical assistance for commission, start-up, test run, guarantee test
- Supply and installation of all pipelines and brackets
Basic and precision installation of all components, such as devices, columns, pumps and compressors
- Steel construction
- Installation of cracking and reaction furnaces
- Tank farm construction
- System integration, operating checks and commissioning
- Plant revisions
- Pipeline and bracket corrosion protection
- Insulation
- Scaffolding





SIEMENS
ENERGY

SIEMENS ENERGY
READY TO POWER
A SUSTAINABLE
FUTURE

**Interview with Petru Rușeț, Managing Director
of Siemens Energy România**

Text by LAVINIA IANCU

Photo by JUSTIN IANCU

Siemens Energy Romania, the new independent company to activate exclusively in the energy sector, was set up this year, in March.

We have talked with Petru Rușeț, Managing Director of Siemens Energy Romania, about the situation of the regional energy market, trends in the field at global level, innovative technological solutions and plans for the future of the company.

Dr. Eng. Petru Rușeț is the Managing Director of Siemens Energy Romania. With a 30-year career in the energy sector, he had multiple management roles in some of the most important companies in the field, such as: Transelectrica SA, Electrica SA and Siemens SRL.

His vast experience in the field of energy, during which he coordinated complex projects, recommends Dr. Eng. Petru Rușeț as a specialist in energy sector and management.

Dear Mr. Petru Rușeț, you have been working for over 30 years in this complex and interconnected landscape of energy and you have an accurate and extensive knowledge of the profile market in Romania and not only. How does the situation in this sector of the economy currently look like from the specialist's perspective?

The current energy market in Romania is influenced by the need for investments in improving the quality of transport and distribution services.

In Europe, the need to interconnect energy transport systems led to a new type of projects such as: cross-border interconnection, unified transport and distribution markets, smart metering.

We will see this evolution also in Romania, generating investment opportunities at least for the next 10 years.

On the other hand, the project of common interest and economic stimulus will reactivate the renewable energies and conventional generation projects.

Another important element to stimulate investment is the strategic decision to reduce carbon emissions in energy generation. Reducing

the production of energy from fossil resources (coal) will boost the use of gas as a transition fuel, in combination with the use of hydrogen.

How did Siemens Energy come into being and what is the object of activity of this new company? What does its portfolio include?

Siemens Energy in figures and data at global level:

- Generated revenues: ~€29bn¹
- Number of employees: ~91.000²
- Orders: ~€34bn³
- Backlog: ~€77bn⁴

Siemens Energy covers a unique portfolio, in one company: **Transmission, Power Generation and Industrial Applications (formerly Oil & Gas)**, featuring a great range of solutions across the **energy** value chain. Also, we are developing a **New Energy Business** portfolio of forward-looking technologies in the field of decarbonization: generating 'green' hydrogen from renewable energy. **Siemens Gamesa Renewable Energy** completes the range of technologies and services for a sustainable future.

What are the strengths & benefits provided by Siemens Energy?

The world is facing a great challenge: to satisfy growing demand for electricity and at the same time protect our planet.

Siemens Energy is committed to providing solutions for sustainable, reliable, and affordable energy possible.

With a clear customer focus, we are developing innovative technologies, essential for building the energy systems of the future.

We energize society. That's our purpose.

What flagship projects are currently found on the agenda of Siemens Energy Romania?

We are a very young company, with an extensive expertise.

With our team of around 200 skilled specialists, we will continue the projects of updating the Romanian energy network with substations, transformers and other state-of-the-art technologies for the national TSO and all major DSO's in the market. As well, we will be part of the energy

1 Revenue figures based on FY 2019, as reported

2 Employee figures as of March 2020

3 Orders figures based on FY 2019, as reported

4 Backlog figures based on FY 2019, as reported



transition in Romania in area of generation with new fuels, industrial solutions, or renewables.

One of the most important resources in the energy mix of the future is identified by experts as being hydrogen. Given that the switch of the center of gravity from oil to energy is a complex and difficult process, the development of energy industry businesses in this direction will require both planning and a rigorous coordination. What are the concerns of Siemens Energy in this field?

The company is constantly investing in developing new technologies.

On this mission of finding alternatives to coal-based energy production, Siemens Energy is investing heavily in R&D for hydrogen-based energy generation.

At this moment, we already developed commercial solutions for production of green hydrogen (e-Hydrogen). And we also already offer complete and tested solutions for energy production based on hydrogen and hydrogen mixed with methane gas.

Electricity storage is one of the new trends of the major energy companies, against the backdrop of energy transition. According to experts, large-scale use of batteries will be a usual practice in the future decades. How does Siemens Energy see this trend?

Energy storage is one of the most important tools in the transition to a CO₂-neutral economy,



bringing stability to the renewables network and keeping a balance between production and consumption.

Siemens is the first company to install the first MW of storage in the Romanian energy sector.

The solution has been in commercial operation for more than 2 years and, certainly, further development can be based on a verified technology.

Another important element is 'green' hydrogen, that connects the renewable energy production to the industrial consumption. The production of green hydrogen is based on electrolysis, which separates water into hydrogen and oxygen, using electricity. The process is environmentally friendly and reacts flexibly to the fluctuation of energy production from the sun and wind, contributing to the integration of renewable energy in all sectors.

In Romania, the only piece missing from the renewables storage puzzle is the legislation to support investments in promoting these solutions and to create a local customized business model for energy storage.

Siemens, a pioneer company in digitalization, constantly confirms the approach for building a world in which smart solutions will form the basis of the future energy network.

How does the involvement of Siemens Energy materialize in this regard?

Digitalization offers numerous opportunities. Data transparency can help us better understand the complexity of the grid, support proactive maintenance, and improve productivity.

For example, the sensors from the wind turbines are transmitting real time information on wind condition and the equipment technical parameters. This large amount of data is grouped in the Siemens cloud – MindSphere – and algorithms can be used for optimizing performance or failure prevention.

What is more exciting is that the MindSphere IoT operating system allows data to be transferred between the process model and the actual process.

The process model is a virtual copy of the actual process, a digital twin that optimizes, simulates, and utilizes process design data throughout its lifecycle.

Using MindSphere, our customers will be able to test and develop new applications and business models.

Transforming Europe into the first climate neutral continent by 2050 is the objective that underlies the European Green Deal. Use of energy from renewable sources has numerous potential benefits, including a reduction of greenhouse gas emissions, diversification of energy supply and reduction of reliance on fossil fuel markets. In your opinion, will renewable energy find a place in the long run in the global energy mix?

I believe the future energy systems will be based on renewable energy.

The challenge will be to find solutions that ensure network stability to the energy generated from wind and solar sources.

Power-to-X technologies will offer multiple opportunities to decarbonize energy across all sectors, by helping to store volatile renewable energy with the use of e-Hydrogen.

How does the COVID-19 crisis impact the company? What are the next steps to help ensure full recovery?

Siemens Energy Romania took the situation very seriously and appointed a local task force to manage the situation from the early stages of the health crisis. All necessary measures were taken to ensure the safety of our team, partners, and suppliers, following strictly all regulations.

Although we have faced some discontinuities in the supply chain, no major delays were registered in our projects.

We are constantly monitoring the situation very carefully, on local and global level. The key element is flexibility, we need to adapt in a rapid manner to the next developments.

Of course, this crisis reminded us how important digitalization is, and also a stable energy network. And most of all, how important the people are, doing a great job in unprecedented circumstances.

I would like to thank all of them, and especially my colleagues and our partners that were present in all critical locations to ensure a continuous power supply.

Thank you for keeping the lights on!

What plans does Siemens Energy Romania pave for the near future and what will be the priority directions of development of the company? Do you also consider listing on the stock exchange?



On 7th of May 2019 Siemens AG announced the spin-off of Siemens' Gas and Power (GP).

GP – comprising the company's oil and gas, power generation, power transmission and related services businesses – will gain independence and entrepreneurial freedom through the carve-out, subsequent spin-off and public listing.

The new GP group, named Siemens Energy, comprises Siemens' majority stake in the renewable energies company Siemens Gamesa Renewable Energy (SGRE).

Siemens Energy is capable of providing world-class products,



solutions and services across significant parts of the energy value chain.

SIEMENS SRL - as a first step – transferred its GP business in Romania to Siemens Energy SRL by way of a demerger, on March 1, 2020.

An extraordinary shareholders' meeting in July 2020 paved the way for the spin-off and subsequent public listing on September 28, 2020.

Although Siemens will deconsolidate Siemens Energy, Siemens AG will initially remain a non-controlling anchor shareholder in Siemens Energy AG with a 35.1% shareholding. Additionally, the Siemens Pension Trust e.V. will hold a 9.9% stake in Siemens Energy AG. With the strategic and operational development of Siemens Energy AG and Siemens AG, Siemens AG intends to reduce its stake

in Siemens Energy AG significantly within 12 to 18 months after the Spin-off taking effect.

Siemens is committed to further support Siemens Energy, for example, through the professional services of Siemens' Financial Services, the strong sales network of the Siemens Regions and the licensing of the powerful Siemens brand.

Siemens Energy aims to be a trusted partner in navigating the **increasingly complex energy transformation** by offering fully integrated world class products, solutions and services in a unique focused set up along the entire energy value chain for **benchmark energy systems - today and tomorrow.** ■

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Stick to the Speed Limit

Controlling Ignition Sources from Diesel Engines

How safe is your site? Petroleum products play a vital role in our day-to-day lives, and confidence in the safety of the industry's operations is paramount. Diesel engine runaway is the unexpected danger for the operators of Oil & Gas sites and has led to fatal accidents for companies involved in producing and storing crude oil, petroleum, and refined products.

'Runaway' is a dangerous phenomenon where a running diesel engine draws extra energy from low concentrations of any hydrocarbons in the surrounding air. This causes uncontrolled overspeed beyond the safe design limits and can lead to an explosion or ignition of the external air-fuel mixture.

Have you considered all the risks? Diesel engines that are not properly controlled or protected present a dangerous source of ignition when used in areas where combustible vapours may exist. A resulting explosion often leads to significant consequences for people, refineries and the environment.

Few industries are more hazardous or more safety conscious than oil and gas. It takes a broad variety of diesel-powered equipment to successfully support site operations. Stationary diesel engines, mobile equipment, emergency response vehicles, and vehicle mounted engines should all be considered as a potential risk to operations.

Recent independent third-party tests performed by a leading engine OEM have shown that a diesel engine can start to run away within 3 to 9 seconds of a gas being drawn in, at a concentration as low as 22% LEL. Once this begins, turning off the ignition key will not stop a diesel engine.

The only proven, reliable method to stop the engine running away beyond a safe limit is to install



an automatic emergency shutoff valve in the engine's air intake system. Blocking the engine's air intake effectively cuts off the external fuel source and air supply, so the engine quickly stops, and the ignition source is removed.

Areas designated for no ignition sources are places where diesel engines must have appropriate upgrades to mitigate their potential for ignition. Does a safety policy already exist that considers all the risks, and what can we do to reduce accidents? All employees should be educated about the risks, and a risk assessment should be performed.

The detonation of flammable gas clouds creates serious explosions.

In Texas, in 2003, two workers were killed and two more were injured when a vapour cloud from the cargo was drawn into the intakes of two idling vacuum trucks.

In 2005, a US refinery explosion was ignited by a runaway diesel

pickup; 15 people died and 170 were injured in the blast.

In 2010, an offshore rig explosion killed 11 people and created the largest accidental oil spill in history. A diesel engine runaway in the engine room is considered one of the main contributing factors.

Dosco have partnered with Chalwyn to raise awareness of the explosive risks from runaway diesel engines and offer training and consultations to site operators in Romania on ways to better protect their equipment and employees.

dosco.ro



Midia Natural Gas Development Project Moving Forward

Laying of the Pipeline that Will Carry Black Sea Gas Begins

Black Sea Oil & Gas (BSOG), owned by investment fund Carlyle International Energy Partners and The European Bank for Reconstruction and Development, implements during June 2019 - September 2021 the first gas production project in the Romanian continental shelf of the Black Sea built after 1989 in Romania - Midia Gas Development Project (MGD).



On September 17, 2020, BSOG and GSP Offshore announced the start of the stage of laying the pipelines of over 120 kilometers that will carry gas to Romania and cover 10% of the country's consumption needs.

The event for the commencement of pipelaying was attended by PM Ludovic Orban, Economy, Energy and Business Environment Minister Virgil Popescu, Minister of National Defense Nicolae Ciuca, Minister of Environment, Water and Forests Costel Alexe, as well as US Ambassador to Romania Adrian Zuckerman.

"I am honored to be present today at a symbolic moment for a fundamental project for Romania's economic development. This symbolic moment shows the clear will to complete a project extremely important for Romania, namely the start of exploitation of the first offshore gas field, after 1989. Two companies are involved in this project: Black Sea Oil & Gas, which works in partnership with Grupul de Servicii Petroliere - a very concrete illustration of the strategic partnership

between Romania and the US. Black Sea Oil & Gas is owned by Carlyle group, which has the license to operate and exploit the field, and Grupul de Servicii Petroliere is a 100% Romanian company, which has developed spectacularly in the last 15 years and which has implemented projects in many parts of the world, complex projects, extremely important and made in the best conditions. The value of the project amounts to USD 400 million, this being a project with great value and highly complex, whose target is to bring gas from the offshore field into the gas network of Romania, so that gas can reach the gas transmission and distribution infrastructure. The project also involves the technical operator of the national gas transmission system, Transgaz, which builds the pipeline from the gas treatment plant to Transit 1 pipeline and another pipeline through which the extracted gas will reach Transgaz's network. The Government I run has mobilized EUR 1 billion for the project aiming at the establishment of gas distribution networks in the localities where such gas distribution does not exist, so that Romanian gas reaches the homes of Romanians; we also support all investments through which natural gas can be capitalized on, so that it generates added value, well-paid jobs and quality and competitive products," stated



“In order for projects in the Black Sea to gain momentum, it is absolutely necessary that all hostile legislation in the Black Sea hydrocarbon fields, which was adopted in 2018, disappears completely. And those rules that at the moment allow foreign companies and foreign producers to bring natural resources to Romania at the expense of local companies and producers must disappear. Romania must ensure that it can produce its own gas without problems and that it stops imports,” **Mark Beacom, CEO BSOG, underlined.**

Ludovic Orban.

“For us, for the Government of Romania, Black Sea gas exploitation has been, is and will continue to be a priority. Today we are witnessing an important step for this project, a US investment of over EUR 500mln, through which Romanian Black Sea gas will finally reach the homes of Romanians. It is an ambitious program that the Government has assumed, to bring Romanian gas to the homes of Romanians, to have new gas sources available. Today, by starting works to install the submarine pipeline, we will have the certainty that next year the first molecule of gas will flow through these pipelines. I wish this strategic partnership with the US, this economic side to continue,” Virgil Popescu added.

“In order for projects in the Black Sea to gain momentum, it is absolutely necessary that all hostile legislation in the Black Sea hydrocarbon fields, which was adopted in 2018, disappears completely. And those rules that at the moment allow foreign companies and foreign producers to bring natural resources to Romania at the expense of local companies and producers must disappear. Romania must ensure that it can produce its own gas without problems and that it stops imports,” Mark Beacom, CEO BSOG, underlined.

“Today there is a special event for Romania, for the Romanian-US partnership. This project started two years ago is beginning to take shape, after the engineering phase, after the long preparations, manufacturing... This project is entirely a Romanian project, made with teams of Romanian specialists, with Romanians, with Romanian equipment.



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We have started laying the underground pipeline for several days. The distance to contact with water is 150 meters, and in total it has 1.5 kilometers. The submarine pipeline undercrosses the beach. After this well is drilled, it will be connected to the pipeline within several days. We estimate that the production rig will be installed in November, the Uranus jack-up rig following to become operational for drilling somewhere at the end of December, and in the middle of next year the first gas would enter the national transmission system. Romania has a tradition of over 40 years in offshore production, with the first Romanian drilling rig Gloria, which we are now turning into a museum. We have Black Sea exploitation started by Petrom, continued by OMV Petrom and, more recently, now the first important development of new fields of the partners from Black Sea Oil & Gas. Romania has major chances to stop gas imports and be able to use the money we get out of the country in other investments. It is the first project, Neptun Deep and Trident Lukoil will follow. With these Black Sea discoveries, Romania can become a net exporter, not an importer,” Gabriel Comanescu, CEO GSP Offshore, pointed out.

About the project

The Midia Gas Development Project (MGD Project) comprises the Ana and Doina gas fields (320 Bcf P50 contingent resources) which were discovered in 2007 and 1995 respectively. Both are of latest Miocene to Dacian age, shallow marine sandstone (shore face) reservoirs, some 120 km offshore Romania, in the XV Midia Shallow area where the water depths are of 70 meters.

MGD Project consists of 5 production wells (1 subsea well at Doina field and 4 platform wells at Ana field) a subsea gas production system over the Doina well which will be connected through an 18 km pipeline with a new unmanned production platform located over Ana field. A 121 km subsea pipeline will ensure the delivery of the gas from Ana platform to the shore, where a 4.1 km underground pipeline will connect to the new gas treatment plant (GTP). The processed gas will be delivered into the NTS operated by Transgaz at the gas metering station to be found within the GTP.

Background

By the end of 2018, BSOG has completed the necessary offshore activities including the drilling of the appraisal wells, the pipeline route and platform surveys, onshore activities including archaeological surveys and route surveys as well as the engineering studies including the conceptual Engineering and Front-End Engineering and Design. BSOG has also secured a long-term gas sales agreement with a Romanian subsidiary of ENGIE for the entire MGD Project gas production, reduced by the volumes that the producers are currently obliged to sell on the centralized market and a gas transmission contract with Transgaz for a contractual period of 15 years. The entire project infrastructure, including all offshore and onshore facilities, has been contracted to be built, installed and commissioned under an EPCIC Contract with GSP Offshore. The development drilling of the five production wells will also be performed by GSP for which GSP Uranus jack-up rig will be deployed.

In February 2019, BSOG's partners and shareholders have taken the Final Investment Decision in the MGD Project. The project will cost roughly USD 400mm and all the contracting activities for this project will have, in total, Romanian content of 70%.

In 2019, BSOG anticipates having completed the detailed engineering for the MGD Project, commenced the fabrication of the Ana Wellhead Platform at the shipyard in Agigea, commenced the civil constructions at the GTP site in Corbu and have purchased a number of long lead company items.

Key facts

- 10 billion cubic meters of gas to be extracted

- Production start date: autumn of 2021
- Support for communities in Corbu and Vadu

Undercrossing the beach area by horizontal drilling

In the coastal area, the gas pipeline will be laid by undercrossing (150 meters onshore and 1300 meters offshore).

To reduce environmental impact upon crossing the beach area with the gas pipeline, BSOG chose to under-cross the beach using the horizontal directional drilling technology, which will allow drilling and laying under the beach, so as to contribute to preserving the natural landscape and ecological balance in the work area.

Horizontal directional drilling will be performed from shore to sea, the pipeline being laid being pulled by the ship at seas, through the drilled hole.

The perimeter of the site for the drilling equipment will have reduced sizes, of approximately 25x40 meters, and will be placed on a land plot owned by the company, at a distance of 150 meters from the shoreline, respectively approximately 90 meters from the limit of the sand area of the beach used by tourists. All private lands necessary for pipelaying are owned by BSOG.

Key facts

- Conservation of the natural environment
- Reduced duration of works: around 20 days to execute the horizontal directional drilling
- Land owned by BSOG

During works, all measures necessary will be taken to reduce/avoid impact on tourism.

Stages of the project

- June 2019 – September 2021: Construction works at the gas treatment plant and laying of the onshore pipeline
- Quarter IV 2021: Starting the operation of the project

Main collaborators

The main collaborators within the MGD Project are: Transgaz, operator of the national gas transmission system, which will build the pipeline linking the gas treatment plant and the Transit 1 pipeline, with a length of 25 kilometers, by September 2021; and GSP Offshore, main contractor, which will build and commission the entire offshore and onshore infrastructure of the project, by September 2021.

Benefits for Romania

- Covering 10% of Romania's gas needs in phase 1
- Substantial taxes and royalties payable to the Romanian state
- Contributing to Romania's energy security
- Supporting the national gas transmission infrastructure
- Creating new opportunities for service providers in Romania
- Ensuring access to state-of-the-art technology

The project also brings benefits for the community in Corbu, creating opportunities for local entrepreneurs during and after project implementation. BSOG also develops social involvement programs in the community and supports the local communities in the approach of connection to the gas distribution network. ■

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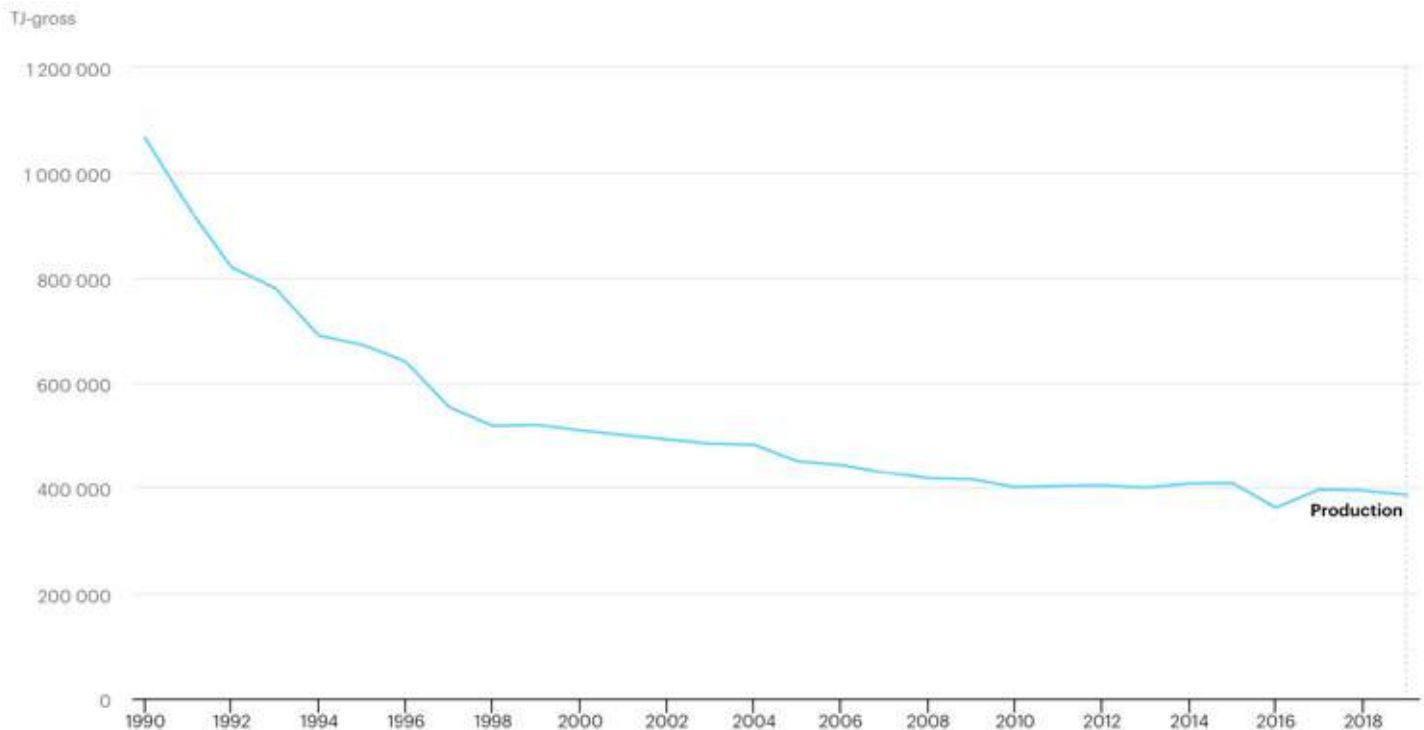
The Gas Paradox

Romania Has Natural Gas, but Does Not Use It Yet

by Carol Dan

Romania, which has become, thanks to Brexit, the second largest gas producer in the European Union (EU), is living a paradox: it has natural gas, but does not use it. In fact, it doesn't even extract it, although it could use it to repair one of the most enduring ugly memories of the Communism, the lack of heating during winter.

Natural gas production, Romania 1990-2019





he most used fuel for heating remains, as 100 or 500 or 2,000 years ago, wood. Since joining the EU, on January 1, 2007, Romania has been trying or pretending to try to align with Community rules and bring citizens to a standard of living as close as possible to the 'European average', this Fata Morgana which, for Romanian citizens, is intangible in so many areas.

In July this year, the Government announced Romanian voters that the European Commission (EC) had approved financing, worth EUR 1 billion, for the program to expand the gas distribution network in Romania. Whether it is a significant or negligible figure depends on how little can be done with this money in a country which in 2019 ranked second in the top of countries found with irregularities in the use of European funds.

Currently, only 35% of Romania's population (i.e. 3.66 million Romanians, according to data from the National Regulatory Authority for Energy) is connected to gas networks, and if this plan of the Government succeeds, we will get to 70% (7.32 million citizens).

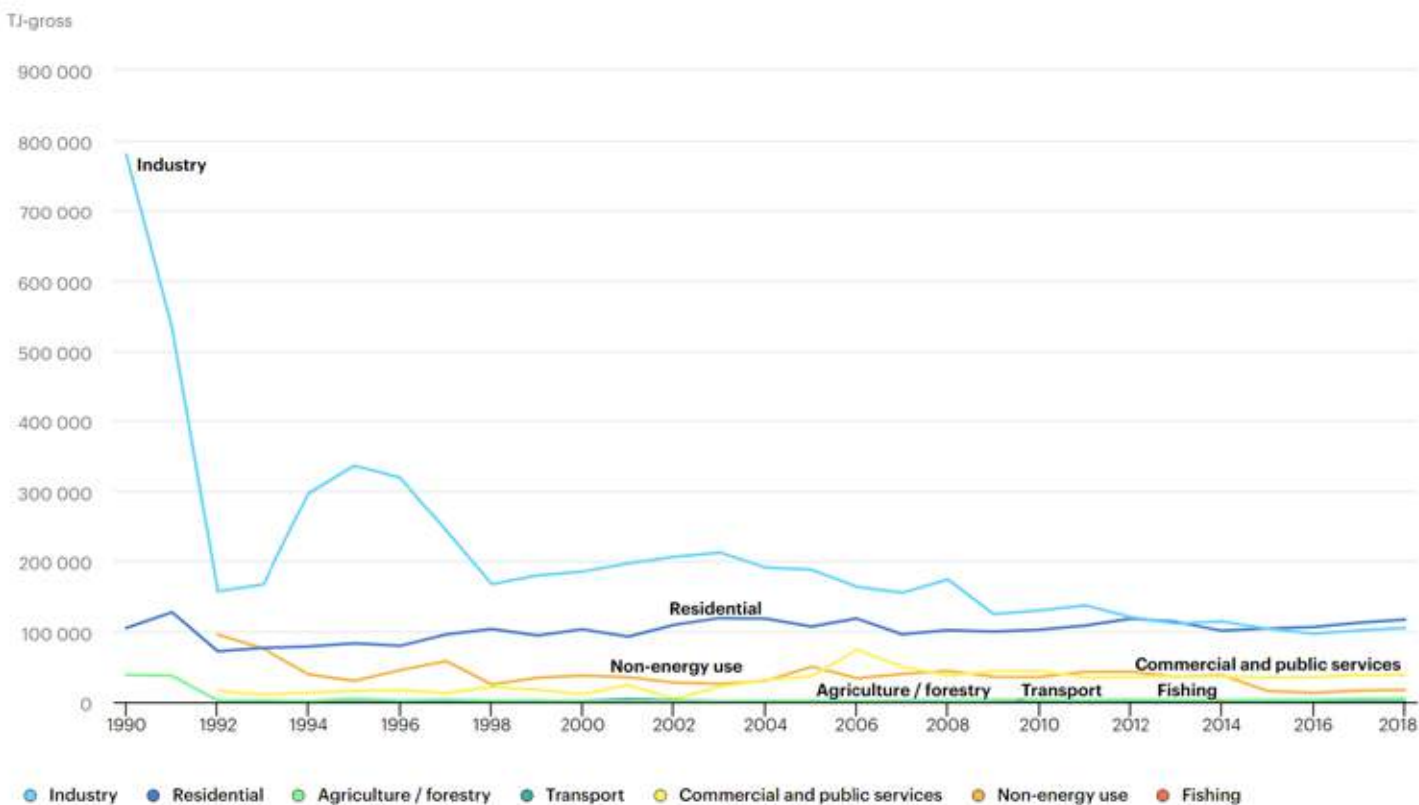
Government officials say the amount of EUR 1 billion from Brussels will be spent for the mentioned purpose over the following seven years. Indeed, it is an ambitious plan, especially for a Government of Romania which lately has not managed to stay

in power for more than one year. But we are in election year, with two rounds of elections, local and parliamentary, and such moments predispose politicians to extremely tempting promises.

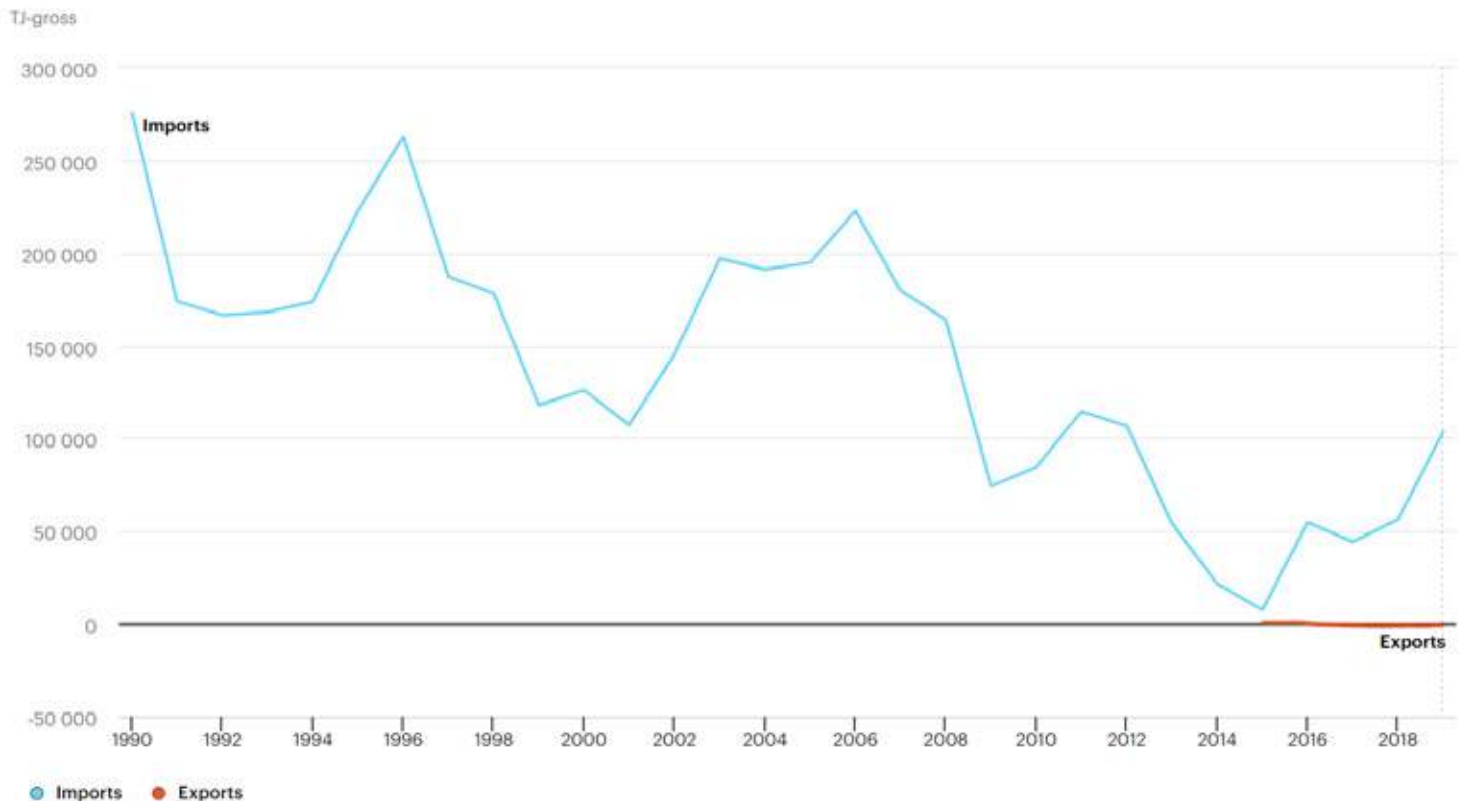
Just over 700 kilometers of new gas pipelines are built annually in Romania (the total at national level is currently around 42,000 kilometers) and in 2019, of the total 3,200 administrative and territorial units (ATUs) in Romania, 955 localities had gas network. A year before, there were fewer by 10. Almost 10 years ago, the number of Romanians connected to the gas network was 2.9 million. Therefore, in a period of 10 years, less than 1 million Romanians were connected to gas networks.

On the one hand, we complain about deforestation, but for almost half of households in Romania (3.5 million) wood is the main fuel for heating, although it is no longer cheap, as since 2017 the price of firewood increased by 50%, going up from RON 170 to RON 400 per cubic meter. In Romania, approximately 38.6 million cubic meters of wood are cut in a year, of which 2 million cubic meters are used for heating.

Natural gas final consumption by sector, Romania 1990-2018



Natural gas imports vs. exports, Romania 1990-2019



Although gas would be the solution at hand to replace wood, there are some problems. Until two years ago, the 3,200 mayoralties in Romania did not have the legal possibility to decide by themselves to invest in a local gas network, but needed approval from the Ministry of Energy. Obviously, it was a clear obstacle in the way of gas network expansion, and here we cannot blame foreign investors. In the end, this shortcoming was eliminated with the amendment, two years ago, of legislation. But the cost of connection is prohibitive for many households. Permits, authorizations, projects, works, realization of the installation and workmanship for a gas connection usually exceed RON 10,000, added to which is the cost of the individual heating system, which may vary between RON 3,000 and RON 11,000. This amount is higher than the average value of bank deposits of most Romanians, of around RON 10,000. For many, it is impossible to pay this money, even if they wanted to replace wood with gas. Moreover, they must wait for at least half a year to actually have gas in their homes.

On the other hand, the two gas distribution operators in Romania (only two because legislation does not allow free competition on this market), Engie (France) and E.ON (Germany), do not seem very eager to invest in the expansion of gas networks, although in their home-countries the Middle Ages ended at the right time, and these investments were made many decades ago. Their main concern is whether they recover the money they should invest in such projects.

In early September, Eric Stab, CEO of Engie Romania, company which distributes gas to 19 counties in the southern half of the country, made a surprising statement regarding the construction of gas networks: "It is a good intention, but we shouldn't do it in such a way as to sacrifice ourselves." He showed that Engie connected around 50,000 - 60,000 new consumers per year, the equivalent of a medium-sized city in Romania.

Without the desire of gas distribution operators to get involved, the Government's project to connect as many localities as possible to the gas networks cannot be achieved. That's also because the Government no longer owns any gas distributor, as it has sold them all before joining the EU. We can only speculate on the reasons, of both seller and buyers.

Romania does not lack gas, although, over the last 10 years, a prophet of the energy apocalypse emerges sometimes, telling us that reserves would be over within 10 or 15 years.

Three years ago, Romania was about to reach its goal of becoming an energy and gas exporter in the region (in the meantime, Romania has become a net electricity importer), but missed the opportunity due to political disagreements between the main parties, PNL and PSD.

The bone of contention was Black Sea gas, seen as the main source for the future gas pipelines in the villages of the country. There is still no consensus in Parliament on how much companies willing to extract Black Sea gas should be taxed, which makes some companies abandon investments, and the Government's plans become increasingly unfeasible by the day. Or maybe this is precisely the purpose, if we consider the reluctance of PM Orban in stating clearly whether Black Sea gas will be extracted or not.

In absence of clear commitment to Black Sea gas extraction, the Government makes plans for gas consumption. It is not known which gas, but probably it considers rather import than domestic production.

At the current consumption, of 11 billion cubic meters per year, 6 billion cubic meters would be added from the Black Sea, so there would be a surplus that could be used either for the consumption of new consumers, household and industrial, or for export. For PM Orban this is a comfortable surplus, so it's almost not worth bothering about it. But export to the Republic of Moldova, an ambition for which a 120-kilometer pipeline was built to Chisinau (investment of EUR 152mln, of which EUR 46mln European funds) is not confirmed for now.

There were also some plans bandied about on building a gas pipeline to Serbia, but the project was dropped. Instead, Romgaz has been struggling since last year to commission a combined cycle gas-fired power plant of 430 MW in Iernut, Mures County, but it did not manage so far. More recently, the Government wants to involve Romgaz in another power plant project, in Halanga, near Drobeta-Turnu Severin, where, together with the private company Grup Servicii Petroliere, it would build a gas-fired unit of 200 MW.

It should be noted that a single gas-fired power plant was built in Romania in the last 30 years, by OMV Petrom.

In the meantime, the European Investment Bank announced since last year that it would no longer finance investment projects related to energy coming from fossil sources, including those on natural gas, and by the time Romania decides what it wants gas could no longer mean much and be too expensive to be used.

But the window of opportunity does not remain open forever, and in the meantime Turkey has announced a gas discovery in its territorial waters in the Black Sea. Bulgaria, the same.

We don't know what Bulgaria will do, but Turkey will probably want to use this opportunity, if it proves feasible, to position itself in the area of gas export. Meanwhile, Turkey becomes increasingly aggressive in the Mediterranean Sea, where it claims ownership over another gas discovery.

Romanian Minister of Economy, Energy and Business Environment has welcomed the discoveries of the two countries competing with Romania in terms of regional energy supremacy, but did not mention anything about the 270 billion cubic meters of gas in the territorial waters of Romania, whose exploitation has been postponed for two years already due to investors' discontents related to legislation. Instead,

the minister says that "one of our directions is to build offshore wind farms (in the Black Sea), such as those that already exist in the North Sea." A truly European speech.

However, these endeavours to use natural gas, including for heating, could be already obsolete. The EU's aim is that by 2050 its Member States, or those that will still be member then, drop their CO2 emissions by 60% compared to 1990. In this chapter Romania is doing quite well, given that does not have much industry left, so it shouldn't struggle too much to reach this goal. Some say that such a goal can only be achieved through electrification, but this means that electricity should be produced in larger quantities and have bearable prices for as many consumers as possible, and the EU disclaims all traditional energy sources as insufficiently green, including natural gas.

What is left? Wind and solar power and, probably, some hydropower.

Romania has set the most ambitious green energy target in the entire EU, of 30.7%, although no one has explained how this goal would be reached, given that in recent years there were no new wind and photovoltaic power parks installed, and the contribution of hydropower can drop sharply due to drought, as it happens this year or as it happened in 2012, the year of entry into insolvency of Hidroelectrica, the largest energy producer in Romania.

It's not the first time when Romania makes decision that will cost it dearly. It did the same 10 years ago, when it granted for renewable energy the largest subsidies in the entire Community bloc, which made the electricity bills of the population to double. But it's a good thing the Government is ambitious, although there could be a contradiction between this goal and the electoral decision under which any Romanian Government has allocated billions of lei to the mining sector, as it happens this year.

We cannot know the future, but we can wonder whether Romania is about to leave Black Sea gas exploitation to others. But, by the time things are clarified, we don't even need gas for heating, because global warming is working for us, and winters become almost Mediterranean. We can still sleep in the back seat of history, we're in no hurry. ■



Halanga to Be Reborn

A New Gas-fired Power Plant of 150 MW and a Photovoltaic Park of 50 MW

The new project developed by GSP Power and Romgaz in Halanga, consisting of a gas-fired power plant of 150 MW and a photovoltaic park of 50 MW, will generate clean energy for a safer future.



SP Power, the recently established division of Grup Servicii Petroliere (GSP), and Romgaz will build in partnership a new power plant in Halanga, on a land belonging to CET Halanga, currently bankrupt, located close to Drobeta-Turnu Severin.

This is a mixed project, for the construction of a production capacity of 200 MW (150 MW through the gas-fired power plant and 50 MW through photovoltaic panels). The panels will be placed on the site of the current Halanga power plant, which will be greened.

Natural gas will be delivered by Romgaz, GSP Power following to deal with the construction of the power plant and the installation of

photovoltaic panels.

According to PM Ludovic Orban, who attended the event for launching the new investment project, “in the following seven years Romania will benefit from opportunities that it has not had lately, becoming attractive for international economic partners. Therefore, the European financing facilities, through the various programs, such as the SURE initiative, will allow the development of the transport and energy infrastructure and of health and

education areas”.

“It’s about a modern pilot project, a novelty even at European level, where gas-fired electricity will be produced, in addition to green energy, subsequently following to also move to the production of green energy based on hydrogen. We will manage to make this industrial platform be reborn and I believe that within around 2 years this project will be completed. By what we do, we want the Romanian energy industry to revive. We will have in Halanga a modern power plant, through which we will reduce CO2 emissions, and if it proves to be a successful model we will replicate it across Romania,” said Minister of Economy, Energy and Business Environment Virgil Popescu.

“Our objective is to build, develop and operate efficient and flexible power plants that will contribute to ensuring the resilience and adequacy of the Romanian energy system. Here, in Halanga, it is a first step towards a consolidated network of power plants that will flexibly produce 1,000 MW of electricity for Romania. Our project transforms a contaminated land into an area that will generate green energy. We are talking about a 100% private, Romanian investment, which can be materialized, from the receipt of all permits, in only 12 months,” said GSP CEO Gabriel Comanescu.



“It’s about a modern pilot project, a novelty even at European level, where gas-fired electricity will be produced, in addition to green energy, subsequently following to also move to the production of green energy based on hydrogen. We will manage to make this industrial platform be reborn and I believe that within around 2 years this project will be completed. We will have in Halanga a modern power plant, through which we will reduce CO2 emissions, and if it proves to be a successful model we will replicate it across Romania,”

said Minister of Economy, Energy and Business Environment Virgil Popescu.

Besides the construction of 1,000 MW in onshore gas-fired power plants and the construction of offshore generation capacities, he added that he was interested in getting involved in the development of any offshore project, given the experience of the company in this area, GSP developing for over 15 years large-scale projects around the world. “Currently, GSP is building a support facility for a wind power plant of 50 MW in France,” Gabriel Comanescu exemplified.

“Romgaz is one of the most important gas producers in Europe. Our ability to enhance this production is directly proportional to the adaptation to the new realities of the European market. Gas is the new transition fuel to a total integration of renewables in the system. Halanga is the project perfectly integrated in the national and European ambitions to develop, in the long term, a low pollution system, which generates, along with jobs for the community, as well as a source of green energy instead of a slag and ash storage, which has been constantly polluting this area for years,” mentioned Romgaz CEO Adrian Volintiru. He added that gas would be the next coal and then the company must work for diversity and adaptability to the new conditions. “Transforming gas into electricity is part of the company’s strategic vision, but also part of our company’s national responsibility,” pointed out Adrian Volintiru.

Moreover, Romgaz CEO insisted to mention that this was the first year when one could feel that “the Government wants to make investments,” referring to the level of dividends requested, which are within the legal limit of 50%, and not 90% as in the previous years. “Moreover, the Economy Minister has concretely requested strategic investment objectives to be made by Romgaz in the following years.”

To reach the proposed target - the gas-fired power plant of 150 MW and the photovoltaic park of 50 MW, GSP Power and Romgaz concluded on September 11 a Memorandum of Understanding.

Given that the new power plant will not be able to ensure heating for Drobeta-Turnu Severin, carried out by the old power plant, currently non-operational, Romgaz signed another Memorandum of Understanding with Mehedinti Gaz to install several dozen district power plants, on gas, in the city.

To reach the proposed target - the gas-fired power plant of 150 MW and the photovoltaic park of 50 MW, GSP Power and Romgaz concluded on September 11 a Memorandum of Understanding.

GA 200MW



Romgaz also concluded with S.C. Mehedinti S.A. a Memorandum of Understanding (MoU) based on which the partners will develop the project ‘Thermal units for thermal energy production’. Cooperation between the two parties will contribute to the development of advantageous and rapid implementation practices, in the interest of the end-consumer, to ensure continuity in thermal energy supply. The development of the mentioned project aims to use natural gas to produce heat.

“Signing the MoU between the two companies and the setup of the Drobeta-Turnu Severin Branch represents, in fact, the first step taken by Romgaz to become an active player in the gas distribution and supply market,” Romgaz CEO mentioned.

Technical data of the gas-fired power plant

- Installed power: 150 MW
- Efficiency: 48%
- Standard start time: Sync < 1 min | Full < 5 min
- Quick start time: Sync < 0:30 min | Full < 2 min
- Stop time: < 1 min
- Fuel: natural gas

Benefits

The plant, with quick start and stop and intermittent daily operation capacity, will deliver MW in the network in 30 seconds and will reach maximum capacity in 2 minutes. The unit will support the National

Energy System with a variety of auxiliary services, also benefiting from the best load variation rate in the industry.

96 hectares of greened land

Within the Halanga project, 96 hectares of contaminated land, which affects the neighbouring communities within a radius of 50 km, will be greened. The land will be transformed into a photovoltaic field, which will generate clean energy for the community.

Benefits

- Greening the contaminated site
- Installing 50 MW, new and clean
- Over 100 GWh generated for approximately 15,000 households
- Contributing to the fulfilment of Romania’s renewable quota under the NECP plan
- Advanced technology for photovoltaic panels with a high yield (up to 20%)
- Automated management and control to strengthen the power grid ■



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Talking to Experts

Dr. William Gillett

NO CLIMATE BENEFIT FROM HYDROGEN UNLESS EU STOPS SUBSIDIES FOR FOSSIL FUELS

Hydrogen is an important alternative for sectors that are stuck in the fossil fuel economy. As national governments and European parliamentarians negotiate the EU's hydrogen strategy, EASAC issues a new commentary. "Hydrogen can help reduce our dependency on fossil fuels," says William Gillett, EASAC's Energy Programme Director. "But the climate benefits will be limited if we use fossil fuels to produce it - even with carbon capture and storage. The EU must stop all subsidies to fossil fuels. The fast-growing demand for hydrogen must be met by a massive increase of renewable electricity, together with certified imports from third countries."

"Electricity is a great way to decarbonize our economy. But important sectors such as ships, trucks, planes, and steel production cannot easily be powered by electricity. To become climate neutral, they need a fuel that can be transported like oil or gasoline, or that can convert iron ore to steel at high temperatures like coal," explains William Gillett, EASAC's Energy Programme Director. "The growing demand for hydrogen and synthetic fuels will require much more renewable electricity to be generated in the EU. In addition, Europe will need imports and must therefore develop partnerships with third countries to drive global trade in renewable hydrogen and in technologies to produce it."

Carbon capture and storage does not make fossil-fuel based hydrogen climate neutral

EASAC calls on the EU to remove direct and indirect subsidies, taxes, levies, and other incentives for fossil fuels. "Direct and indirect support to fossil fuels sends wrong signals. The EU should rather strengthen carbon pricing and revise the emissions trading directive to build investor confidence in future markets for renewable electricity and renewable hydrogen. Even in combination with carbon capture and storage, fossil-fuel based hydrogen still has a significant carbon footprint. To achieve carbon-neutrality, the EU

should take a leadership role in global markets for renewable hydrogen and in the manufacture of low-cost electrolyzers to produce it," says EASAC's Energy Programme Director.

Avoid expensive lock-ins to infrastructures

The scientists also highlight the importance of avoiding premature and expensive lock-ins to new or renovated infrastructures that are subsequently made redundant by cheaper technologies or market developments. "In the electricity sector, distributed generation is playing an ever-increasing role. Building on this experience, it makes good sense to think local for hydrogen and adopt a phased approach: initially deploying distributed electrolyzers for local hydrogen production feeding into local market networks", explains Gillett. "Also, let's not forget that the synthetic fuels pathway is less efficient than using electricity together with a battery or using electricity directly, so hydrogen or synthetic fuels will predominantly be used only where electrification is not an option."

As European countries continue to adapt their economic, social and industry policies to minimise the impacts of the COVID-19 pandemic, key elements of the Green Deal offer new jobs and business opportunities to help with the recovery while addressing climate change at the same time. In particular, the European Union (EU) hydrogen and energy system integration strategies clearly highlight the potential benefits of and urgent need for investment to accelerate the deployment

of renewable electricity generation on which decarbonisation of the EU economy, including the future production of renewable hydrogen and synthetic fuels in the EU, will depend.

EASAC (the European Academies' Science Advisory Council), which is the independent voice of the National Academies of Science of the EU Member States, Norway, Switzerland, and the UK, draws upon its previous work on energy and decarbonisation policies to comment and advise, through 15 key points for policy-makers, on the implementation of the EU hydrogen strategy.

"Now is the right time to begin a phased approach to the sustainable development, production and use of renewable hydrogen. Strong governance of the emerging renewable hydrogen sector and the removal of market barriers in the EU is needed, with good coordination between EU and Member State strategies and rules. Targeted investments in decentralised electrolyzers should focus on further cost reductions and feeding renewable hydrogen into sustainable local markets and networks. For the foreseeable future, hydrogen should be used primarily for decarbonising those applications that are difficult to electrify," EASAC underlined.

The EU should build a strong leadership role in global hydrogen markets, by developing international partnerships with third countries to include not only collaboration on research and technology development but also the trading of hydrogen production technologies, renewable hydrogen and synthetic fuels.

Further studies and demand-driven initiatives, including research, should be initiated soon at EU and national levels to address the emerging and long-term needs for hydrogen infrastructure, standards, and certification.

EASAC calls on the EU to establish science-based long-term energy and climate policies that will remove market barriers and build investor confidence in the production and use of renewable hydrogen.

Key points for policy-makers

1. Urgently increase the generation of renewable electricity, which should be used directly where possible, and is essential for large-scale renewable hydrogen production.

2. Remove subsidies, taxes, levies, and other incentives for fossil fuels, which continue to distort energy markets and limit the potential growth of markets for renewable hydrogen and synthetic fuels.

3. Include independent experts beyond the Clean Hydrogen Alliance in the work to identify and develop measures for removing market barriers.

4. Strengthen carbon pricing by revising the Emissions Trading System Directive to stimulate markets for renewable hydrogen and hydrogen-derived synthetic fuels.

5. Introduce new regulations (besides the Emissions Trading System) to accelerate change from fossil to renewable hydrogen in chemical and other industries, including steel production.

6. Build investor confidence by supporting stakeholders working together in local hydrogen networks (Member States, industry, civil

society, and science community).

7. Promote sustainable development of hydrogen markets, beginning with local or regional networks close to renewable electricity supplies, hydrogen production plants and hydrogen consumption centres.

8. Establish strong links for coordination of governance structures between EU, national, regional, and local levels.

9. Secure supplies of renewable hydrogen from outside the EU (in addition to EU production) by establishing international partnerships and trade cooperation with interested third countries as well as with EU neighbours.

10. Promote investments in renewable hydrogen and hydrogen-derived synthetic fuels, with a focus on minimizing the energy invested, as well as accounting for the overall life-cycle costs per unit of greenhouse gas emission reduction.

11. Encourage investment in renewable hydrogen by promoting the EU taxonomy with its disclosure obligations for environmentally sustainable economic activities.

12. Establish standards for hydrogen production based on life-cycle greenhouse gas performance, and certification of low-carbon hydrogen to use with EU taxonomy for investments.

13. Support the rapid development of electrolyzers, prioritising those with falling costs and fast market diffusion and learning curves, to accelerate hydrogen production.

14. Prohibit the use of whole trees for producing renewable hydrogen by using sustainability criteria that limit carbon payback times to less than 10 years.

15. Support research, market studies and demand-driven initiatives on hydrogen infrastructure (local, national, and international) and on certification and standards.

About the European Academies' Science Advisory Council (EASAC)

EASAC is formed by the national science academies of the EU Member States, Norway, Switzerland, and United Kingdom, to collaborate in giving advice to European policymakers. EASAC provides a means for the collective voice of European science to be heard. Through EASAC, the academies work together to provide independent, expert, evidence-based advice about the scientific aspects of European policies to those who make or influence policy within the European institutions. ■

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European Green Deal

REDUCING EMISSIONS BY AT LEAST 55% BY 2030

The European Bank for Reconstruction and Development (EBRD) has invested EUR 20mln as part of the capital increase for Vestmoldtransgaz, operator of the newly built Ungheni-Chisinau gas transmission pipeline, within an action aimed to support Moldova in its goal to increase energy security.

European Commission President Ursula von der Leyen pledged that the European Commission is proposing to increase the 2030 target for emissions reduction from 40% to at least 55%. This will put the EU on track for climate neutrality by 2050 and for meeting its Paris Agreement obligations. The Carbon Border Adjustment mechanism will help ensure others will follow Europe's lead.

By next summer the Commission will revise all of the EU's climate and energy legislation to make it 'fit for 55'.

The President further announced that 30% of the EUR 750 billion #NextGenerationEU budget will be raised through green bonds. And 37% funding will be invested in European Green Deal objectives, including 'lighthouse' European projects – hydrogen, green building and 1 million electric charging points.

She called for a new 'European Bauhaus' as a co-creation platform for architects, engineers and designers, to launch the architectural style of our times, reflecting our aspirations to make Europe the first climate neutral continent.

The response to coronavirus – and protecting Europe's health in the future

The President called for lessons to be learned, saying Europe must build a stronger European health union, with a future-proof and properly funded EU4Health programme, a reinforced European Medicines Agency (EMA) and a strengthened European Centre for Disease Prevention and Control (ECDC).

She pledged to build a European BARDA – agency for biomedical advanced research and development – to enhance Europe's capacity to respond to cross-border threats. The President called for a debate on new competences for the EU in the field of health, as part of the forthcoming Conference on the Future of Europe.

An EU that protects

President von der Leyen stressed the importance of reinforcing Europe's social market economy and of protecting workers and businesses from external shocks. She promised to put forward a legal framework for setting minimum wages, emphasising that "minimum wages work – and it is time work paid".

The President pledged action to boost the single market, reinforce the Economic and Social Union, get the Schengen area working in full again, update the EU's industry strategy and adapt its competition framework.

Europe's Digital Decade

President von der Leyen stressed that "Europe must now lead the way on digital – or it will have to follow the way of others." She called for a common plan for digital Europe with clearly defined goals for 2030, such as for connectivity, skills and digital public services. She further announced that the EU will invest 20% of NextGenerationEU's budget on digital.

A Vital Europe in a Fragile World

The President called for the revitalisation and reform of the multilateral system, including the UN, WTO and WHO. She pledged that the European Commission will put forward a European Magnitsky act and urged Member

States to embrace qualified majority voting on external relations “at least on human rights and sanctions implementation.”

Referring to “new beginnings with old friends”, the President said Europe is ready to build a new transatlantic agenda with the U.S. and to reach a deal with the UK, provided it honours the Withdrawal Agreement, “a matter of law, trust and good faith” on which “we will never backtrack”.

The President pledged an economic recovery package for the Western Balkans and highlighted the importance of Europe’s relationship with Africa: “not just neighbours ... but natural partners”.

Finally, President von der Leyen pledges to use Europe’s “diplomatic strength and economic clout to broker agreements that make a difference” on ethical, human rights and environmental issues. She made clear that the EU wants a global agreement on digital taxation, but will go it alone if that cannot be achieved: “I want Europe to be a global advocate for fairness.”

A New Pact on Migration

The President revealed that the Commission will put forward its New Pact on Migration, with an approach based on humanity, solidarity and a “clear distinction between those who have the right to stay and those who do not”. She promised that the Commission will “step up and take responsibility” for dealing with the situation after the Moria fire, but: “if we step up, then I expect the Member States to step up ... Migration is a European challenge and all of Europe must do its part.”

Rule of Law

The President stressed that the Commission will before the end of September adopt its first annual Rule of Law report covering all Member States. President von der Leyen pledged to ensure that EU funds are spent with the rule of law guaranteed.

Anti-racism and tackling hate crime and discrimination

President von der Leyen announced that the Commission will present a European anti-racism action plan, strengthen racial equality laws and extend the list of EU-level crimes to all forms of hate crime and hate speech, whether based on race, religion gender or sexuality. The Commission will also appoint its first ever anti-racism coordinator. It will put forward a strategy to strengthen LGBTQI rights and will push for mutual recognition of family relations in the EU.

Letter of Intent

President von der Leyen’s Address is accompanied by a ‘Letter of Intent’ to European Parliament President David Sassoli and to German Chancellor Angela Merkel, who holds the rotating Council Presidency. The letter sets out a list of initiatives the European Commission intends to bring forward over the coming year, in order to deliver the objectives set out in the Address which is available online in English, French and German, and will be available in all EU languages shortly. ■

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bp and Microsoft to Advance Net Zero Goals

bp and Microsoft Corp. have agreed to collaborate as strategic partners to further digital transformation in energy systems and advance the net zero carbon goals of both companies. This includes a co-innovation effort focused on digital solutions, the continued use of Microsoft Azure as a cloud-based solution for bp infrastructure and bp supplying renewable energy to help Microsoft meet its 2025 renewable energy goals.



“bp is determined to get to net zero and to help the world do the same. No one can do it alone – partnerships with leading companies like Microsoft, with aligned ambitions, are going to be key to achieving this,” said William Lin, bp executive vice president for regions, cities & solutions. “By bringing our complementary skills and experience together, we are not only helping each other achieve our decarbonization ambitions but also creating opportunities to support others on their journey towards reducing carbon emissions.”

“bp shares our vision for a net zero carbon future, and we are committed to working together to drive reductions in carbon emissions and fulfil demand with new renewable energy sources,” said Judson Althoff, executive vice president of Microsoft’s Worldwide Commercial Business. “A strategic partnership such as this enables each organization to bring its unique expertise for industry-leading change and the potential to positively impact billions of lives around the world.”

Earlier this year, bp announced its ambition to become a net zero emissions company by 2050 or sooner, and to help the world reach net zero. By the end of the decade, it aims to have developed around 50 gigawatts of net renewable generating capacity – a 20-fold increase on what it has previously developed, increased annual low carbon investment 10-fold to around USD 5 billion and cut oil and gas production by 40%. In January 2020, Microsoft announced its goal to be carbon negative by 2030 and remove more carbon from the environment than it has emitted since its founding by 2050. These announcements build on the potential that both companies see in working together to help deliver a net zero carbon future.

Co-innovation

A memorandum of understanding (MOU) signed by bp and Microsoft recognizes the capabilities that each company can provide to accelerate progress towards their sustainability goals and help the world decarbonize. Their co-innovation effort will initially be focused on four areas that combine Microsoft’s digital expertise with bp’s deep understanding of energy markets:

- Smart and clean cities – identifying synergies between Microsoft’s ‘Smart Cities’ initiative and bp’s ‘Clean Cities’

vision, with a goal of identifying areas for strategic collaboration to help cities achieve their sustainability aims.

- Clean energy parks – co-development of innovative, clean energy parks with an ecosystem of low carbon technologies such as carbon capture use and storage (CCUS) to prevent or reduce emissions.
- Consumer energy – exploring innovative ways to harness the power of data-driven, personalized, actionable insights to empower energy consumers to manage their home energy use and reduce carbon emissions.
- Industrial Internet of Things (IoT) solutions – delivering an ‘intelligent edge’ of capabilities to bp production and operations facilities.

For both bp and Microsoft, low carbon is part of a wider sustainability agenda and they aim to deepen collaboration in this area over time.

Grounding in science and math

Scientists account for carbon emissions by classifying them into three categories, or ‘scopes,’ according to Microsoft.

- Scope 1 emissions are the direct emissions that your activities create — like the exhaust from the car you drive, or for a business, the trucks it drives to transport its products from one place to another or the generators it might run.
- Scope 2 emissions are indirect emissions that come from the production of the electricity or heat you use, like the traditional energy sources that light up your home or power the buildings owned by a business.
- Scope 3 emissions are the indirect emissions that come from all the other activities in which you’re engaged, including the emissions associated with producing the food you eat, or manufacturing the products that you buy. For a business, these emission sources can be extensive, and must be accounted for across its entire supply chain, the materials in its buildings, the business travel of its employees, and the full life cycle of its products, including the electricity customers may consume when using the product. Given this broad range, a company’s scope 3 emissions are often far larger than its scope 1 and 2 emissions put together.

Microsoft expects 16 million metric tons of carbon emissions this year. Of this total, about 100,000 are scope 1 emissions and about 4 million are scope 2 emissions. The remaining 12 million tons all fall into scope 3. Given the wide range of scope 3 activities, this higher percentage of the total is probably typical for most organizations.

The difference between being ‘carbon neutral’ and being ‘net zero’

There’s another aspect of carbon math that’s also essential. This is the difference between being ‘carbon neutral’ and being ‘net zero.’ While they sound similar, in fact they’re different.

Given common usage, companies have typically said they’re ‘carbon neutral’ if they offset their emissions with payments either to avoid a

reduction in emissions or remove carbon from the atmosphere. But these are two very different things. For example, one way to avoid a reduction in emissions is to pay someone not to cut down the trees on the land they own. This is a good thing, but in effect it pays someone not to do something that would have a negative impact. It doesn’t lead to planting more trees that would have a positive impact by removing carbon.

In contrast, ‘net zero’ means that a company actually removes as much carbon as it emits. The reason the phrase is ‘net zero’ and not just ‘zero’ is because there are still carbon emissions, but these are equal to carbon removal. And ‘carbon negative’ means that a company is removing more carbon than it emits each year.

Microsoft to bring bp further into the cloud

As part of bp’s cloud-first IT approach, the company has extended its agreement to use Microsoft Azure cloud services as a strategic platform. This expands on bp’s existing relationship with Microsoft, which helped accelerate the digitization of bp infrastructure and operations, while Microsoft 365 enabled greater collaboration and remote working productivity during the COVID-19 response.

Utilizing Microsoft Azure cloud enables bp to access a broad and deep portfolio of cloud services, including machine learning with Azure Digital Twins, data analytics, security and more, to gain greater insights, drive significant optimization opportunities and transform business processes.

bp to supply renewable energy to help power the Microsoft cloud

Microsoft and bp have signed a framework agreement for renewable energy projects that aims to provide renewable energy to help power Microsoft’s datacentres. bp will supply renewable energy to Microsoft across multiple countries and regions including the US, Europe and Latin America. The agreement contributes to Microsoft’s 100% renewable energy goal by 2025.

This partnership reflects the environmental and economic benefits of companies like bp and Microsoft working together to carve out a more sustainable future. ■

Clean Air Will Cost USD 2,000bn per Year

Transition to the decarbonization of economy by 2050 would require an investment of USD 1,000bn-2,000bn (EUR 842bn-1,680bn) per year, which would mean around 1%, up to 1.5% of the global GDP, according to a report prepared by the Energy Transitions Commission - ETC, an international think tank based in London.

by Adrian Stoica

As part of the plan to reduce polluting emissions, the European Commission could adopt in the following period a more ambitious target for their reduction by 2030, bundled with a number of new measures that should be adopted by the governments of countries in the Community bloc. One of them could be the gradual elimination, by December 2025, of all direct and indirect subsidies for fossil fuels.

MEPs from the Committee on the Environment, Public Health and Food Safety have recently voted to make climate neutrality mandatory in the EU by 2050 and called on the European Commission to propose a 60% reduction in emissions by 2030 compared to 1990, instead of "at least 50%, up to 55%", as proposed by the Commission. To make sure that the measures to be taken support reaching the target, the Committee on the Environment requested the European Commission to propose an intermediary target for 2040 following an impact

assessment. Also, an independent scientific body should be created to monitor the progress recorded.

Where would the money come from

In the version recently proposed by the members of the Committee on the Environment, Public Health and Food Safety, both the EU and all Member States individually must become climate neutral by 2050, and to this end it is considered to allocate enough funds from the EU and each state from the Community bloc. Another measure considered to reach the target set is the phasing out of all direct and indirect subsidies granted to fossil fuels by December 31, 2025. The European Parliament will vote on the proposals made by the members of the Committee on the Environment, in first reading, within the plenary session of October 5-8, and then negotiations with Member States can begin.

Increasing energy efficiency

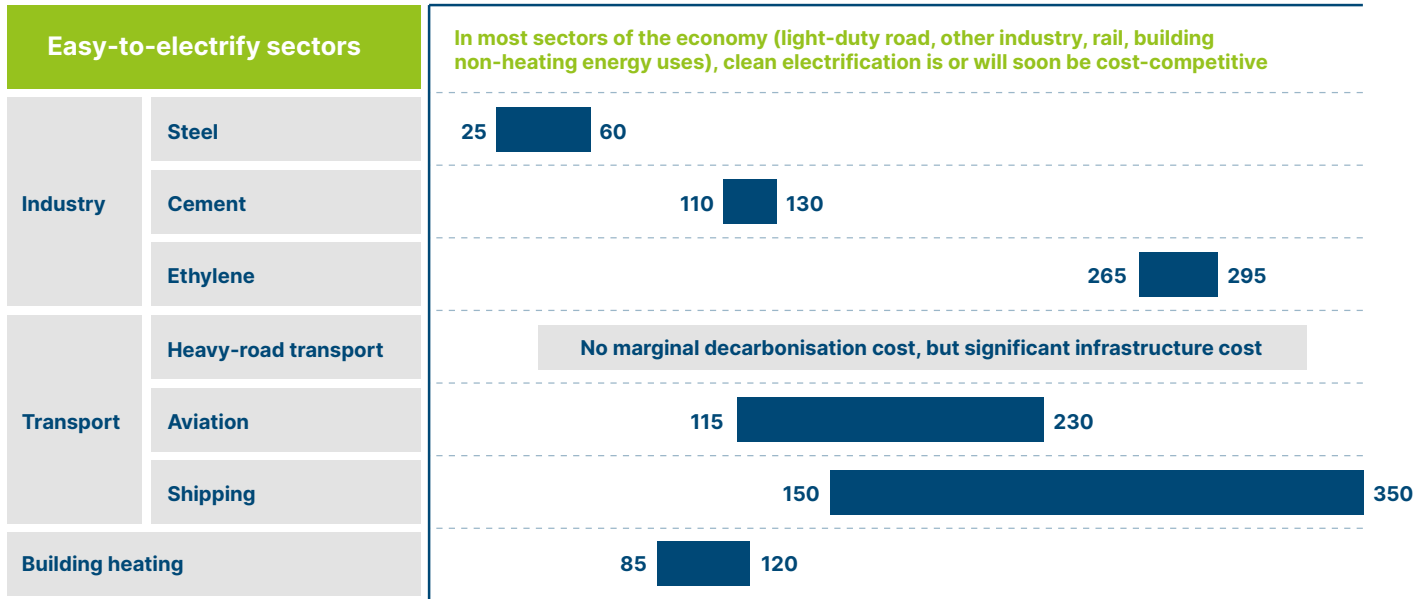
ETC Report, 'Making Mission Possible - Delivering a Net-Zero Economy', claims that to limit global warming by 1.5 degrees Celsius this century, global emissions of greenhouse gasses must be zero. To reach the target in 2050, massive improvements to energy efficiency must be achieved. Therefore, global electricity production will have to increase by four or five times compared to the current level, to reach 90,000-115,000 TWh, and the growth pace of energy production capacities from solar and wind sources should exceed by five to six times the growth reached in 2019. Also, a mass electrification program must be introduced for buildings, public and private transport systems, and for industry, and the report supports the use of hydrogen in cases where this is not possible.

Three steps to reach the target

The report proposes three steps to demonstrate that achieving a carbon-free economy is technically and economically possible by the middle of the century:

Costs of supply-side decarbonisation vary greatly by sectors

Supply-side abatement cost in a low-cost and high-cost scenarios, US\$/tonne CO₂



SOURCE: Industry: McKinsey & Company (2018), *Decarbonization of industrial sectors: the next frontier* / Shipping: UMAS analysis for the Energy Transitions Commission (2018) / Other transport sectors: SYSTEMIQ analysis for the Energy Transitions Commission (2020)

- Reducing energy consumption, while improving living standards in countries with developing economies by greatly improving energy efficiency and moving to a circular economy.
- Expanding the supply of clean energy by building large capacities to generate clean and cheap energy at a rate of five to six times faster than at present, as well as expanding other zero-carbon energy sources, such as hydrogen.
- The use of clean energy in all sectors of the economy and the implementation of new technologies and processes that use hydrogen, biomass or carbon capture in sectors that cannot be electrified, such as heavy industry, long-haul transport and aviation.

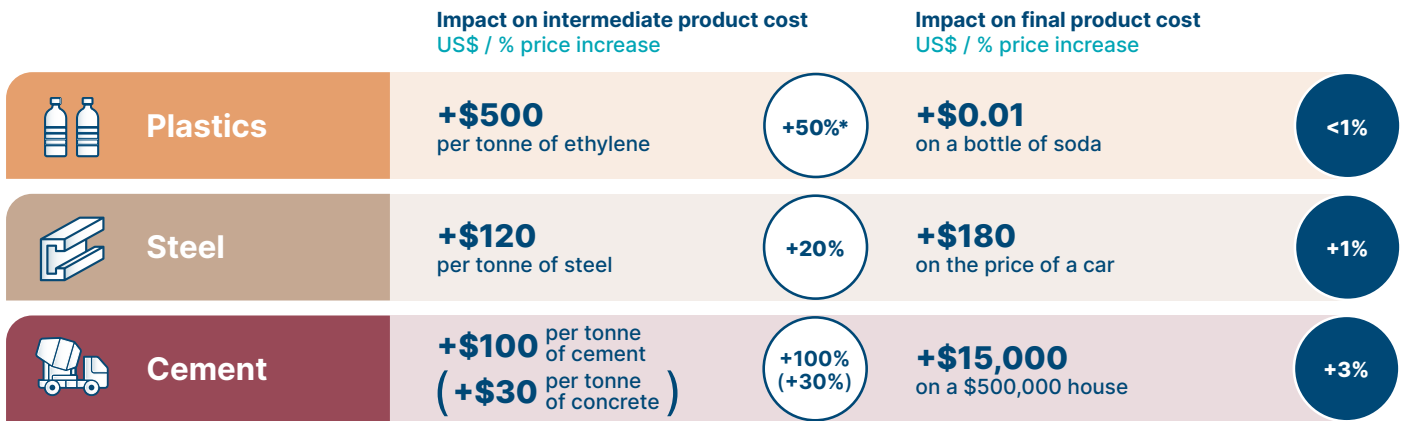
Impact on costs faced by consumers

The impact of decarbonisation on consumer living standards depends on the costs per tonne of CO₂ abated, the importance of energy costs within specific categories of consumer expenditure and the percentage of total consumer expenditure spent on different categories. Overall, achieving a net-zero carbon emissions economy will have a negligible impact on living standards and on growth between now and 2050. Incremental decarbonisation costs will reduce conventionally measured living standards attainable

in 2050 by less than 1%. But important specific distributional effects need to be recognised:

- Multiple sectors with negligible impact: For many categories of consumer expenditure – which grow in importance as per capita income increases –, the incremental impact of decarbonisation will be close to zero, since energy accounts for only a very small percentage of the cost of production and energy inputs are primarily in the form of electricity. The impact of decarbonisation on the cost of healthcare and education, consumer electronics and mobile phones, telecom services, entertainment and other Internet services, clothing, restaurant meals and hotel stays will be immaterial.
- Residential cooling: Decarbonising residential cooling (which, throughout most of the world, is more important than heating) will also have negligible incremental cost, given the potential to deliver zero-carbon electricity at costs equal to or below the cost of fossil fuel-based systems, together with significant potential for further efficiency improvements.
- Surface transport: Decarbonisation of surface transport should yield positive impact on living

In industry, decarbonisation would increase prices of intermediate products but have negligible impact on consumer prices



Assuming an initial price of US\$1000/tonne for ethylene, although the price of ethylene is very volatile.
SOURCE: SYSTEMIQ analysis for the Energy Transitions Commission (2020)

standards but will have important transitional distributional effects. In the long term, consumers will buy surface passenger transport services at lower cost than under a fossil fuel-based system, while road freight costs will be broadly unchanged. But during the transition from ICE vehicles to EVs, the cost and feasibility of initial adoption will vary significantly by specific location and use patterns (e.g., as between urban and rural locations). Poorer households, which usually have a slower vehicle turnover and buy second-hand vehicles, may be more adversely affected, or gain the benefits later.

- **Industrial sectors:** For heavy industry sectors, consumer incremental costs will be small, even though decarbonisation will add significantly to the cost of some intermediate products. This is because intermediate products account for only a small proportion of the cost of the final goods or services. For instance, if it costs USD 25 to USD 60 per tonne of CO₂ to decarbonise steel production, this could add USD 50 to USD 120 (about 10% to 20%) to the cost of a tonne of steel, but will have only a trivial (less than 1%) impact on the final cost of an automobile, washing machine or other electric appliance, or on building costs.

- **International shipping:** Similarly, in the case of international shipping, while it is likely that the use of zero-carbon fuels will add significantly to freight costs, even in the long term and once the new technologies have become mature, the impact on the price of final consumer goods and thus on living standards will be very small.

- **Long-distance aviation:** Decarbonising long-distance aviation will probably require a significant increase in ticket prices versus business as usual. The size of this impact will depend on future trends in the cost of producing sustainable aviation fuels from

bio or synthetic feedstocks, which are inherently uncertain. But if these alternative fuels always cost 50% more than conventional jet fuel, aviation tickets would need to rise 10% to 20% relative to current prices. Given the significant opportunity to improve aircraft and engine energy efficiency, though, the real cost of flying in 2050 might still be below today's level. And since aviation accounts for only about 3% of consumer expenditure even in rich developed societies, the impact on living standards would be ridiculously small.

Metering becomes mandatory

A new draft law amending and supplementing the Law No. 121/2014 on energy efficiency was launched for public debate by the Ministry of Economy, Energy and Business Environment. According to the new provisions, metering will be extended to all end gas consumers and end-consumers of centralized heating, centralized cooling, and domestic hot water. Meters for thermal energy installed after October 25, 2020 will have to be remote reading devices. Moreover, there is an obligation to annually renovate 3% of the total area of buildings heated and/or cooled, held, and occupied by the central public administration. ■

High-efficiency: Compressed Air for Jet Milling Applications

When it comes to generating compressed air, operators of jet milling equipment for the production of very fine powders can achieve significant energy cost savings through the skilful use of heat recovery. It is for this very reason that Kaeser has recently expanded the options palette for its range of oil-free compression rotary screw compressors from the CSG, DSG and FSG series.

Oil-free compression rotary screw compressors from the CSG, DSG and FSG series are capable of supplying process heat as well as compressed air, making them ideal for operation in jet milling applications.



Photo: KAESER KOMPRESSOREN SE

Aside from steam, jet mills are most commonly operated using nitrogen or compressed air. In the case of the latter, heat energy can be recovered from the compressed air inside the jet nozzles and subsequently reused for the milling process. Exhaust heat arises as a by-product of compressed air generation, which essentially makes it a cost-free source of energy.

With the specific needs of jet milling applications in mind, Kaeser has now

extended the options palette available for its two-stage, oil-free compression rotary screw compressors to include such features as compressed air discharge temperature control. Operating via flexible, controlled adjustments to the intercooler, this option can lead to a clear reduction in specific energy consumption per tonne of the final product, depending on the type of material being processed.

Kaeser offers the option of compressed air discharge temperature control on compressors from the CSG, DSG and FSG model range, featuring a power range from 37 - 355 kW and pressure from 4 - 11 bar. Both air-cooled and water-cooled versions are available.

Furthermore, Kaeser also offers compressors specially adapted for operation with nitrogen, in which the compressor can be individually configured to the specific nitrogen circuit.

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Groupe PSA and Total Partner to Manufacture Batteries in Europe

Groupe PSA/Opel and Total/Saft have signed an agreement for the creation of the joint venture Automotive Cells Company (ACC). ACC will be a 50-50 Saft and Groupe PSA/Opel joint venture for the pilot production line. During the commercial production phase, Saft's share in ACC will decline to 33%. With this partnership, the parties are setting up a world-class player in the development and manufacture of high-performance batteries for the automotive industry from 2023.

Total/Saft will contribute its expertise in R&D and industrialization, and Groupe PSA its knowledge of the automotive market and its experience in production. The R&D centre in Bordeaux and the pilot site in Nersac (France) have already started in order to develop the new high-performance lithium-ion technologies. At the end of this R&D phase, mass production could be launched in two 'giga-factories', in Douvrin (France) and Kaiserslautern (Germany).

This project aims to:

- Respond to the challenges of the energy transition by reducing the environmental footprint of vehicles throughout the value chain in a desire to offer clean and affordable mobility to citizens.
- Produce batteries for electric vehicles that will be at the highest technological level in terms of energy performance, autonomy, recharging time and carbon footprint.
- Develop production capacity, essential to accompany the growth demand for electric vehicles in a European market

estimated at 400 GWh by 2030, i.e. 15 times the current market.

- Ensure industrial independence in Europe for the conception and manufacture of batteries, with an initial capacity of 8 GWh, reaching a cumulative capacity of 48 GWh on both sites by 2030. It will represent 1 million electric vehicles produced per year, i.e. more than 10% of the European market.
- Position ACC as a major competitive player in supplying electric vehicle manufacturers.

This project benefits from the financial support of French and German public authorities representing EUR 1.3 billion. It received the European institutions agreement through an IPCEI project that testifies to the strategic importance of mobility for the energy transition. The whole project will mobilize an investment more than EUR 5 billion investment.

The technology used will offer the highest level of energy performance, both in terms of range and charging time, and a lower carbon footprint than that of the competition, setting a new standard in Europe.

The first phase of the project focuses on R&D, including building a pilot plant on the land of Saft's Nersac facility. The plant is scheduled to start up in mid-2021 and represents an investment of 200 million euro. The project will generate around 200 high-skilled jobs in France's Nouvelle-Aquitaine region to develop, qualify and commercially scale up new, high-performance lithium-ion batteries.

This first phase will trigger the investment decision for a large-scale production plant (8 GWh initially, rising to 24 GWh later on) in the northern Hauts-de-France region, followed by a second one of equal capacity in Germany, in order to reach 48 GWh of combined capacity by 2030. That would



“The creation of ACC illustrates Total’s commitment to meet the challenge of climate change and to develop as a broad energy company, a major player in the energy transition, by continuing to provide affordable, reliable, and cleaner energy. Our ambition is to leverage the recognized expertise of our subsidiary SAFT in batteries and the industrial know-how of our partner PSA to meet the strong growth of electric vehicles in Europe,” **Patrick Pouyanné, Chairman of Total commented.**

represent production of one million batteries a year, or around 10-15% of the European market. Ultimately, nearly EUR 5 billion will be required to complete this ambitious program.

“The construction of the European battery consortium that we wished for is now a reality. I would like to pay special tribute to the commitment of the Total/Saft and Groupe PSA/Opel teams who have made this project come true. This new step is consistent with our central purpose: ‘to offer citizens clean, safe and affordable mobility’ and gives Groupe PSA a competitive advantage in the context of growing sales of electric vehicles. ACC takes Groupe PSA further along the road to carbon neutrality,” Carlos Tavares, Chairman of Groupe PSA stated.

“The creation of ACC illustrates Total’s commitment to meet the challenge of climate change and to develop as a broad energy company, a major player in the energy transition, by continuing to provide affordable, reliable, and cleaner energy. Our ambition is to leverage the recognized expertise of our subsidiary SAFT in batteries and the industrial know-how of our partner PSA to meet the strong growth of electric vehicles in Europe. I would like to offer my encouragement to the teams who will be joining ACC to make this adventure a real European technological and industrial success,” Patrick Pouyanné, Chairman of Total commented.

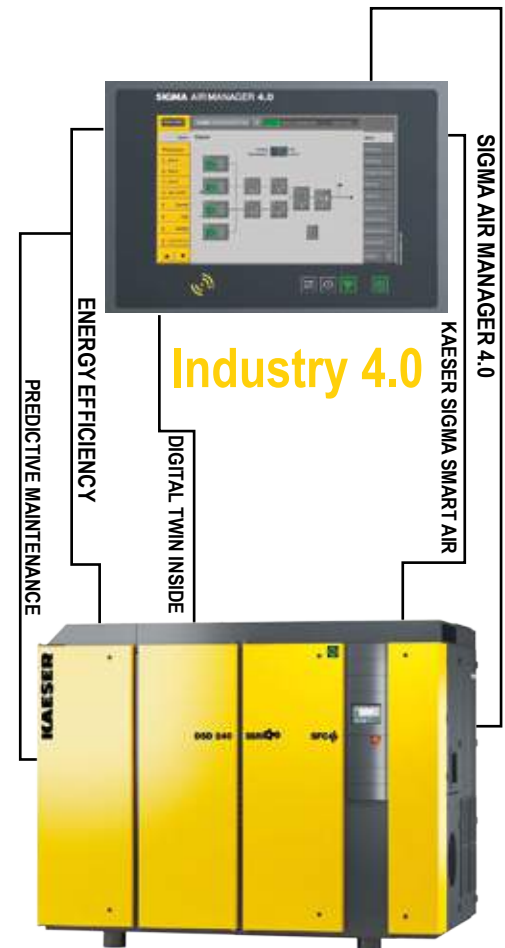
European context

In 2019, the European Union set ambitious, binding targets to quickly expand the sale of electric vehicles. The European market for automotive batteries is estimated to reach around 400 GWh in 2030, or 15 times current needs, corresponding to more than seven million electric vehicles.

European automakers therefore need to plan their battery supply strategy, since batteries represent more than a third of an electric vehicle’s added value.

The project’s implementation is contingent on securing the approvals of the relevant antitrust authorities. ■

Ready for Industry 4.0



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Intrarom Completed Smart Metering Project for Distributie Energie Oltenia in Romania

Intrarom, the Romanian subsidiary of Intracom Telecom Group, announced the completion of a Smart Metering project for Distributie Energie Oltenia S.A. (DEO), an electricity operator, part of CEZ Group in Romania, with presence in seven counties in the Oltenia region. More specifically, the company supplied, installed and put into operation a subsystem that measures and transmits data from smart and mono-phase meters (SMTs), and data concentrators. For this project, Intrarom successfully cooperated with two subcontractors: ADD GRUP and ADREM Invest.





The project was fully aligned with CEZ's Group goal to modernize the electricity measurement system, which involved the replacement of consumers' electricity meters with smart ones that will be included in a smart metering system.

Through this project 10.000 smart meters, filters and data concentrators were provided, as well as installation, configuration and integration services in the existing information system (MMDC). Moreover, there was extensive testing & commissioning, including all the civil works site related, personnel training services, and warranty & support services.

The new smart energy measurement system was able to provide more data than a conventional meter, offering an effective two-way communication between the smart meter and the measured data management subsystem. Meter reading, connection and disconnection were achieved from a distance, increasing thus the comfort of the consumer.

The project entitled 'System for measuring and transmitting data from meters, consisting of mono/three-phase smart meters and data concentrators' is the second project that ADD GRUP and Intrarom delivered to Distribuție Energie Oltenia. The first one was deployed back in 2017 and served as proof of concept for DEO to grasp the technology and choose an efficient smart metering strategy. Results of the project are an excellent evidence of the fact that decisions were correct and well-thought.

"We are delighted that CEZ Romania entrusted Intrarom for the development and implementation of a smart metering solution, as this project, also, fits ideally with the company's development strategy in adopting the most advanced technologies for electrical networks. Its successful completion reaffirms Intrarom's capacity to implement smart projects dedicated to energy and utilities companies - a business-critical sector of the Romanian economy that is in full growth and modernization - helping them to differentiate themselves in the new liberalized market," Georgios Roussos, CEO of Intrarom, stated.

About Intrarom

Intrarom, a subsidiary of Intracom Telecom, has constantly consolidated its position as major vendor on the Romanian Telecommunications Market. The company employs 370 professionals on an industrial area of 33,000 sq.m. Sustained by a solid infrastructure of a 24 million euros investment, Intrarom's experience covers the following lines of business: turn-key solutions for telcos, integrated IT&C solutions for Public Sector, tailor-made applications for enterprise, utilities and banking sector, multi-vendor support and field maintenance, and telecommunication systems manufacturing.

About Distribuție Energie Oltenia S.A. (DEO)

DEO is a part of CEZ Group and operates on Romanian market since 2005 supplying electricity to 1.449.939 clients in 7 districts from Oltenia region. Company mission to provide electricity distribution in conditions of security and safety of electrical installations and to assure the required power quality at the same time reducing the maintenance and network repairs costs. ■

E.ON Completed Smart Lighting Projects Worth Over EUR 1mln

E.ON Energie Romania has so far completed 18 smart lighting projects with LED technology, worth a total of over EUR 1mln, for companies in varied sectors of the economy, especially for those holding spaces with industrial destination, logistics, storage or offices.

The projects represent customized, turnkey projects, and involved the installation of a total of about 11,000 lighting fixtures based on LED technology, but also complex automation works, which allow control and monitoring of the lighting system and which bring added energy efficiency. E.ON has provided for its partners audit of the lighting system, the design of the technical solution, purchase and assembly of equipment, as well as support for financing the entire project.

“Smart lighting solutions are a necessity for companies in the current context, in which we need to reduce energy waste. Benefits of implementing this solution in terms of increase in energy efficiency are significant. For example, the reduction of lighting costs can exceed 60%, which means savings of thousands or even tens of thousands of euros per year and also contributes to improving the productivity in reaching the sustainability goals,” said Catalin Iordache, General Manager of E.ON Energie Romania.

An example is the partnership between E.ON and the poultry producer Avi-Top from Razboieni, Iasi County, part of the Kosarom group, for the rehabilitation of the lighting system at the Miroslava Farm. The number of light fixtures installed was 2,292 in 27 halls. For

Sermis, a supplier of software services and solutions for IT&C systems in Romania, E.ON has replaced 927 lighting fixtures in the production spaces belonging to the company.

The project implemented at AGIL factory, located in Timisoara, meant the assembly of 615 lighting fixtures in the production spaces, as well as in office spaces, and has led to an improved quality of interior lighting and increased comfort for the company’s employees.

At the same time, for Rud Florian Rieger from Sibiu, member of the international Group RUD, a provider of innovative solutions with chain systems and components for various applications, 1,074 lighting fixtures have been replaced in production halls.

In each of these cases savings on lighting were between 50% and 60% of the consumption of the replaced systems, since the first day after implementation.

An important advantage of the E.ON solution is the high energy performance it brings and which is due to the customization of the technical solution and reliability of the chosen equipment. The benefits of lighting fixtures with LED technology include their reliability, improvement of the quality of light in the working space and increased comfort, as well as reduced environmental impact.

E.ON expertise in efficient lighting solutions is not limited to those intended for companies, street lighting solutions on LED technology being in company’s portfolio since 2017. In this segment, the company has concluded partnerships to upgrade lighting systems in 27 localities, in various parts of the country. ■

WOOD Company Financial Services to Act as Issuer Market Maker for Electrica

Electrica, key player in the electricity distribution and supply market in Romania, as well as one of the most important players in the energy services sector, will benefit as of September 30, 2020, from the issuer's market-making services provided by WOOD & Company Financial Services, leading investment bank in Emerging Europe.

"We are glad that Romanian capital market upgrade to Emerging Market status has determined a greater interest of companies to improve their shares liquidity. This partnership between Electrica and WOOD & Company Financial Services is auspicious for both parties involved, but also for investors. The company's high attention to improving its shares liquidity makes us happy even more as we must consider the fact that Electrica is also listed on the London Stock Exchange, the shares being packaged as GDRs. Electrica shares are already one of BVB's most liquid shares, and an improved liquidity may increase its chances of being included in the FTSE Russell indices for Emerging Markets," stated Radu Hanga, Chairman of the Board of Governors, Bucharest Stock Exchange.

"Electrica is one of the pillars of the Romanian economy, it is a strategic Group, formed by companies strong both operationally and financially. Electrica Group's Strategy is to ensure a balance between creating long-term value and maximizing profit for investors. In this respect, by concluding the contract of market making services with WOOD, we want to ensure increased liquidity of our shares and lower share price volatility, in order to be able to be able to maintain a high return for investors. Particularly as Romania was promoted to the status of Emerging Market, we believe that this partnership can bring significant benefits to both existing investors, while being also a good opportunity to attract other shareholders. And every step forward towards implementing the strategy can only prove our consistency, coherence, and involvement for sustainable development, with benefits for all stakeholders," said Corina Popescu, CEO, Electrica.

The Issuer's Market Maker (IMM) activity will be provided by

WOOD & Company Financial Services based on a contract signed with Electrica.

"WOOD & Company is delighted to become Issuer Market Maker for Electrica. This is the first time we will be presented in the market on two levels. We hope this set up will increase overall market depth and will be positive for the stock liquidity and total turnover," said Josef Kohout, Head of Trading Prague, WOOD & Company Financial Services.

"An improved liquidity of the shares is a plus for any listed company when it wants to attract new investors. Electrica is one of the companies highly active in attracting new investors in their shareholding structure and together with which BVB participated in numerous external roadshows to promote the Romanian capital market among international investors. We already have five companies that use this Issuer's Market Maker service, launched by BVB a year ago precisely to improve the liquidity of the shares of listed companies," said Adrian Tanase, CEO, Bucharest Stock Exchange.

Electrica shares registered a turnover of almost RON 420mn in 2019 at BVB, meaning a 4.3% market share, ranking the 6th place in terms of liquidity. Electrica shares are included in almost all BVB indices, respectively in BET, BET-TR, BET-X, BET-X-TR, BETPlus, BET-NG, BET- BK and ROTX.

The IMM is the participant in the BVB's trading system that has taken on the role of sustaining the liquidity of a financial instrument, based on a contract concluded with the issuer of the respective financial instruments, as well as with BVB. ■

Hidroelectrica Wins in Court the Right to Export Energy

On September 17, the European Court of Justice (CJEU) ruled in favour for Hidroelectrica in the lawsuit with Romanian Energy Regulatory Authority (ANRE) concerning the restrictions imposed by the regulatory authority on electricity exports, in case C-648/18 (References for a preliminary ruling - Internal market for electricity - Free movement of goods - Article 37 TFEU - Quantitative restrictions on exports - Measures having equivalent effect - National measure requiring electricity producers to supply the entire quantity of electricity available exclusively on a competitive centralized market in the Member State concerned).

by Adrian Stoica

“I believe an important step has been taken towards normality and towards a reality for which Hidroelectrica has been fighting for many years and which it wants final - a free energy market. Liberalization eliminates the gaps between prices on the Romanian markets and those in other Member States, the main beneficiary of this fair price ultimately being the customer. The European trend and desire head to free intra-Community trade, with minimal restrictions, without arbitrary interventions likely to distort the natural economic flow. Only the free market, seen in an inclusive context - national, regional, European is the one that guarantees a fair

“We hope that such distortions will remain only an unpleasant memory and producers, together with the other players of the energy system, enjoy a predictable legislation, in which the success of a company is built on the own performance and strategy, without the fear of change of rules during the game,” said Bogdan Badea, President of Hidroelectrica’s Management Board.

price for both those who produce and those who consume energy. Competition between players, balance between demand and supply, context and production conditions are those that adjust the value of energy and the import-export flow. I never understood the interventions of the regulatory authority on a system that adjusts itself. We hope that such distortions will remain only an unpleasant memory and producers, together with the other players of the energy system, enjoy a predictable legislation, in which the success of a company is built on the own performance and strategy, without the fear of change of rules during the game,” said Bogdan Badea, President of Hidroelectrica’s Management Board.

In the reasoning of the judgment, the Court mentioned that Articles 35 and 36 of TFEU must be interpreted in the sense that a national legislation



which, as it is construed by the authority tasked to enforce it (ANRE), requires national electricity producers to offer the entire quantity of electricity available on the platforms managed by the single operator of the national electricity market designated for electricity trading services is a measure with the equivalent effect of quantitative restriction to export, which is not likely to be justified on grounds of public security relating to the security of energy supply, in so far as such legislation is not proportionate to the aim pursued. Moreover, CJEU considered that ANRE's interpretation resulted in depriving Romanian electricity producers that have obtained trading licenses in other Member States, whose electricity markets have a functioning coupled with that in Romania, of the possibility to trade bilaterally electricity and, where appropriate, export it directly on these markets.

Under Law 123/2012 energy producers were required to sell the entire energy on OPCOM, thus de facto prohibiting energy exports. The restriction was argued at the time on grounds of security of supply, but - in the context of market unification, there is no practical justification.

The dispute between Hidroelectrica and the Regulatory Authority started in 2015.

ANRE found that between December 2014 and February 2015, Hidroelectrica concluded directly electricity sale-purchase contracts on a Hungarian trading platform, breaching the obligation to offer the entire quantity of electricity available on OPCOM platforms.

ANRE fined Hidroelectrica, but the Bucharest District Court 1 cancelled the report and exempt the energy producer from the payment of the fine, but ANRE appealed this judgment. Bucharest Court lodged an application for preliminary ruling, having doubts on the interpretation of Article 35 of the TFEU in relation to a law, a regulation or administrative practice that constitutes a restriction in the way of export such as that at issue in the main proceedings. ■

Wind Energy, the Battle for a Winning Bet

by Daniel Lazar

The European Commission on September 17 presented its plan to reduce greenhouse gas emissions in the EU by at least 55% by 2030, compared to the 1990 levels. This level of ambition for the next decade will place the EU on a balanced path towards reaching climate neutrality by 2050. This desideratum can be easily reached if wind energy will be capitalized at a higher level than the current one.



The new target of the European Commission is based on a comprehensive assessment of impact both at social and economic level, and at environmental level. This more ambitious target also points out the constant position of the EU as global leader, in view of the following UN Conference on climate change (COP26). Therefore, the Commission has presented an amendment to the draft European Climate Law, to include the target to reduce emissions by at least 55% by 2030 as a preliminary phase towards reaching the target of climate neutrality by 2050 and invited the Parliament and the Council to confirm this target as the new contribution established at national level (CSN) of the EU pursuant to the Paris Agreement and send it to UNFCCC by the end of this year. The Commission has also defined the legislative proposals to be submitted by June 2021 to implement the new objective, including: reviewing and extending the EU emission trading scheme; adapting the Effort Sharing Regulation and the framework on emissions related to land use; strengthening energy efficiency and renewable energy policies and strengthening CO2 emission standards for road vehicles.

2030 National Plans and EU targets

The European Commission has presented a first assessment of the final 2030 National Energy & Climate Plans (NECPs) submitted by the 27 EU Member States. The assessment shows the NECPs have some quite good volume commitments for the expansion of renewables. But that they are still missing a lot of detail on how

Governments will deliver those commitments.

The NECPs are the framework within which national Governments plan their climate and energy goals, policies, and measures for 2021-30. Governments are obliged to develop these Plans under the 2018 Clean Energy Package. And they must include a detailed list of actions they intend to take by 2030.

The NECP process aims to ensure the EU meets its 2030 targets for greenhouse gas emission reductions, renewables, energy efficiency and electricity interconnectors. The EU Commission will monitor the progress towards these targets.

In its assessment of the 27 NECPs the Commission has painted an optimistic picture. It says the final Plans are substantially more ambitious than the 2018 draft ones including on renewable energy volumes. And that the EU will surpass the current 32% renewable energy target. Yet the Commission points out that Member States need to do additional work on the implementation measures. It invites them to increase the predictability on planned tenders and to streamline permitting procedures for new and repowered projects.





“The Commission analysis highlights the key point about the NECPs. The numbers look good on paper. But they are short on detail of how to deliver those numbers. There are nice volumes for the build-out of onshore and offshore wind. But the Plans are thin on how Governments will simplify the permitting of new farms. And many Governments cannot deliver their volumes without simplifying permitting. Many NECPs are also lacking detail on the schedule and design of the auctions Governments will run to support new renewables. But without some more serious homework in the national capitals, the NECPs will not deliver that”
WindEurope CEO, Giles Dickson, stresses.

“The Commission analysis highlights the key point about the NECPs. The numbers look good on paper. But they are short on detail of how to deliver those numbers. There are nice volumes for the build-out of onshore and offshore wind. But the Plans are thin on how Governments will simplify the permitting of new farms. And many Governments cannot deliver their volumes without simplifying permitting. Many NECPs are also lacking detail on the schedule and design of the auctions Governments will run to support new renewables. It is fine to say the NECP commitments add up to 33% renewable energy by 2030. But without some more serious homework in the national capitals, the NECPs will not deliver that,”
WindEurope CEO, Giles Dickson, stresses.

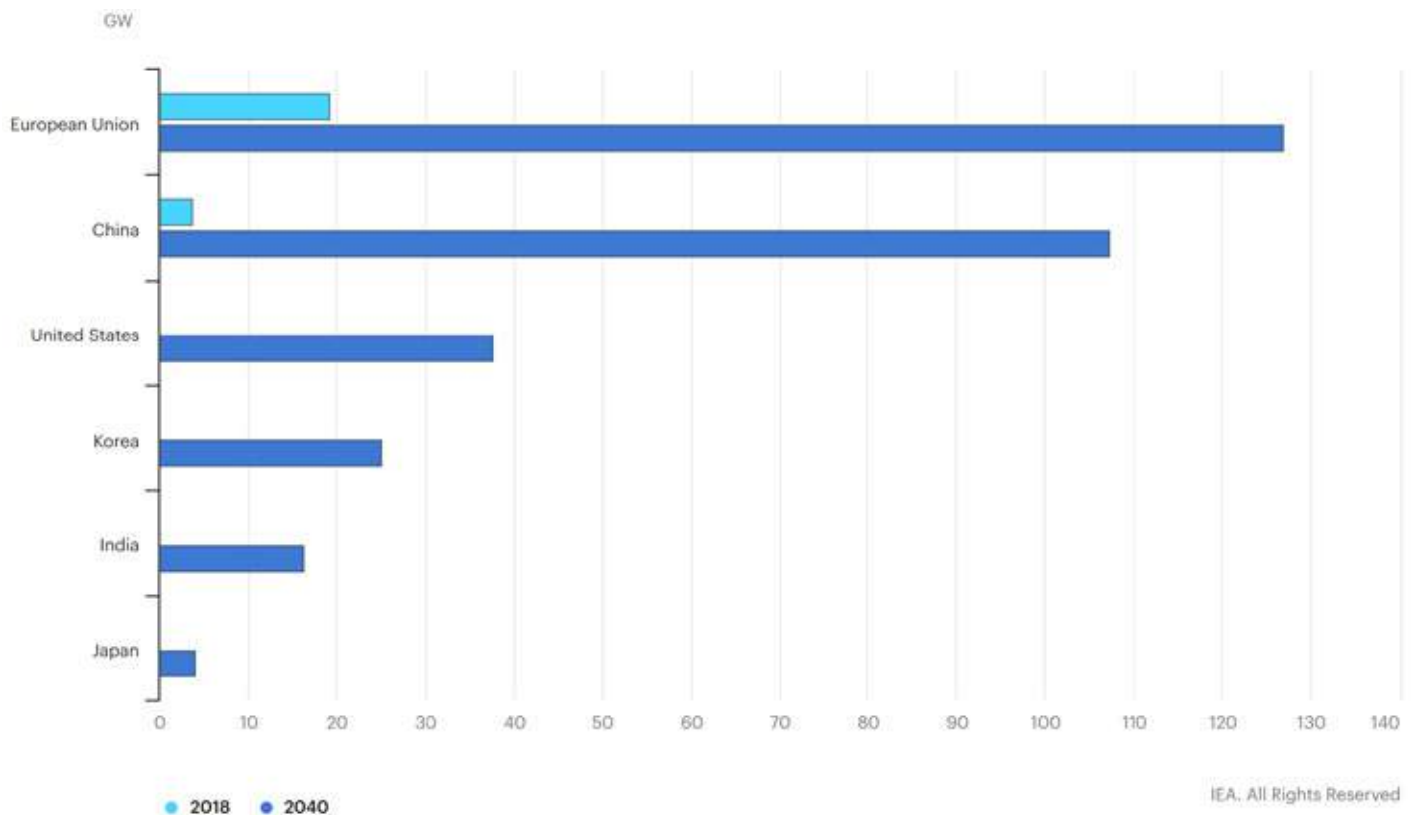
The EU Commission will present more detailed country-specific recommendations in October 2020. Based on their final NECPs, each country must now submit a progress report to the Commission every two years on the status of implementation of its National Plan.

Advantages of expanding wind farms

The quick expansion of wind farms in the following years will lead to numerous benefits, both at society level and in terms of reduction of greenhouse gas emissions. Besides the reduction of greenhouse gas emissions, wind energy contributes to reducing reliance of energy economies and their exposure to the volatile or high costs of fuels and carbon. Wind energy also represents a source of jobs, technological progress, social cohesion, and exports. However, as all progresses, this expansion must take into account other wider social, economic and environmental aspects, to ensure a sustainable growth and its assimilation by the general public. A few obstacles must still be overcome for wind energy to play a role proportional to its potential. This means, among others, ensuring a better access to the power grid, eliminating the administrative barriers in terms of use of renewable energy to the detriment of other traditional forms of energy and improving technology, especially in terms of offshore facilities.

From a social point of view, opinions regarding the development of wind parks vary significantly, addressing them from case to case being necessary to make sure that local interests are considered accordingly. Typical concerns include the potential noise generated by wind farms, visual impact, aspects regarding security, effects on landscape, archaeology, heritage, as well as the potential interference with aviation or maritime navigation etc. There are also concerns on impact that wind parks placed inappropriately could have on nature and wildlife, impact which, given the scale of the expected progress, cannot be ignored. The EU environmental legislation provides for a common legal framework applicable in all Member States to address this issue. Mechanisms established under the existing EU environmental legislation can ensure the development of wind energy in a sustainable manner and reducing to the minimum its impact on the natural environment. These mechanisms and the potential effects of wind parks on nature and wildlife are subsequently examined in this guidance. But it is important to bear in mind that potential conflicts with nature and wildlife are just one of a range of possible constraints that a wind farm developer may face depending on the local context. A clear distinction must therefore be made between these different constraints so that each can be analysed in its proper context and not mistakenly used as a reason for objecting to developments on other grounds. This requires a clear understanding

Installed offshore wind capacity, 2018 and 2040, Stated Policies Scenario



of the type of potential impacts of wind farms on nature and wildlife as well as the legal obligations that must be respected when planning and executing wind farm developments.

IEA: Wind power has capacity to meet world's entire electricity demands

A study conducted by the International Energy Agency (IEA) shows that offshore wind power could become the most important electricity source of Europe, and at global level production capacities could increase by 15 times by 2040, due to cost reductions and technological progress. Currently, power generated by wind turbines installed offshore is responsible for 0.3% of the global power production, informs IEA in what it claims to be the most extensive study on offshore wind energy conducted so far.

However, based on the current and the proposed policies, capacities could increase by 15 times in the following two decades, which would make offshore wind power a business worth USD 1,000 billion. "Why devote so much effort to a technology that today supplies only 0.3% of the world's electricity? Because its potential is (almost) unlimited," underlines the director of IEA, Fatih Birol.

Amid the decrease in production costs and technological progress that increase the power of turbines, "this potential is ever closer. But a lot remains to be done, from governments and industry, to make offshore wind power a pillar of transition to clean energy," Fatih Birol added.

Costs in the offshore area could drop by 40%

Last year, it cost over USD 4bn building an offshore wind power project with a capacity of 1 GW, including the cost for energy transmission, but IEA estimates that in the following decade costs will drop by over 40%. According to Agency's estimates, in Europe offshore wind power will soon have lower costs than gas-fired power production capacities and will be at par with photovoltaic plants, while in China it will become competitive in relation to coal-fired power plants around 2030. The first offshore wind turbines were installed in 1991 in Denmark, country where, last year, approximately 15% of the power production was generated by offshore wind power plants. Denmark, Germany, and the UK are currently the leading global producers and would remain the driver of this global growth.

In the EU, offshore wind parks today have a capacity of almost 20 GW, a figure that would reach 130 GW in 2040 based on the current and the proposed projects. These capacities could reach even 180 GW, situation where the offshore wind power would become the first source of power of the continent, claims the International Energy Agency, which is the main energy advisory body of the most developed 29 states. The Agency was set up in response to the first oil shock of 1973-1974 to coordinate the release of oil from reserve stocks.

In Romania, a European project for the vocational training of miners to work in the wind sector

As mentioned in the previous editions, the Romanian Wind Energy Association (RWEA) presented an ambitious training and vocational training for persons in areas dependent on the coal-fired energy production sector. RWEA, together with Monsson - RESS, CEZ Romania, the Ministry of Energy and Petrosani University have laid the foundations of an Academy for Renewable Sources and Electricity Distribution in Jiu Valley, which aims to access available funds through the Platform for Coal Regions in Transition, given that during the 10-year implementation period of the project, it is intended to retrain approximately 5,000 wind energy specialists and 3,000 electricity distribution specialists per year, for a total of up to 8,000.

According to RWEA, the technical and professional skills of technicians in the mining sector are easily transferable to the renewable energy and energy distribution sectors, and certifications obtained following training and retraining courses will enable them to work in the installation, operation and maintenance of renewable projects and electrical networks from all over the world, with attractive salary benefits.

Poland to give up coal and invest in wind power

Poland wants to accelerate the phasing-out of coal and considers expenses of billions of dollars to invest in renewable and nuclear power, in order to address the difficulties caused by climate change and ensure a stable source of energy supply, the Government in Warsaw announced. In an update of the energy strategy of the country until 2040, the Ministry of Environment informed that Poland planned to invest PLN 150bn (USD 40bn) to build its first nuclear reactors, with a capacity of 6-9 GW. Also, the Government in Warsaw wants to reach an offshore wind power capacity of 8-11 GW by 2040 through investments estimated at PLN 130bn. Following the development of renewable and nuclear energy facilities, 300,000 jobs will be created, Polish authorities claim.

The largest economy in Central and Eastern Europe, which relies on coal for 88% of its power production, wants to reduce this percentage in the coming years because mining is no longer profitable.

For how long will gasoline and diesel still compete with wind power?

The expansion of electric vehicles is growing rapidly and irreversibly. But as more and more electric vehicles become available on the roads, the oil breakeven point needed for gasoline to remain competitive as a source of mobility may drop to today's unacceptable level of USD 9-10 a barrel and USD 17 -19 a barrel for diesel, it is shown in an analysis of the BNP Paribas concern.

At the same investment, new solar and wind energy projects that power electric vehicles will produce up to 7 times more useful energy than gasoline for cars with internal combustion engines with oil quoted at current prices.

The study considered an investor with USD 100bn who must decide whether to invest in oil or renewables, knowing that energy is intended to propel cars and other light vehicles. According to the study's calculations, for the same invested capital, wind and solar projects will produce 3-4 times more useful energy at the wheel level than oil at USD 60 per barrel for diesel vehicles.

Therefore, analysts believe that it is increasingly difficult to argue that oil is the superior fuel from an economic point of view. If we also consider the issue of environmental protection, the comparison is useless.

The challenge of the future: Upgrading wind power plants

In the following years, the great challenge of investors in the field will be related to retrofitting wind power plants, given that the lifespan of technologies in this field is about two decades.

"Two decades ago, the first renewable projects emerged and there were plans made for 2020. Now, many of the targets at the time were reached, and within 10 years the discussions will be about retrofitting," says Ondrej Safar - Country Manager, CEZ Group Romania.

Instead of conclusions

While sailors want a fair wind, those with businesses in the wind power sector rely on wind maps to bring them better results in the market and financially. It is clear for anyone that energy produced from wind sources is a winning bet of the future. ■



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EC to Provide EUR 81.4bln Financial Support for 15 Member States under SURE

The European Commission (EC) has presented proposals to the Council for decisions to grant financial support of EUR 81.4 billion to 15 Member States under the SURE instrument.

SURE is a crucial element of the EU's comprehensive strategy to protect citizens and mitigate the severely negative socio-economic consequences of the coronavirus pandemic. It is one of the three safety nets agreed by the European Council to shield workers, businesses and countries.

Once the Council approves these proposals, the financial support will be provided in the form of loans granted on favourable terms from the EU to Member States. These loans will assist Member States in addressing sudden increases in public expenditure to preserve employment. Specifically, they will help Member States to cover the costs directly related to the financing of national short-time work schemes, and other similar measures they have put in place as a response to the coronavirus pandemic, in particular for the self-employed.

Following consultations with the Member States that have requested support and after assessing their requests, the Commission proposes to the Council to approve the granting of financial support to:

SURE can provide financial support of up to EUR 100 billion in total to all Member States. The proposals put forward by the Commission to the Council for decisions to grant financial support amount to EUR 81.4 billion and cover 15 Member States. Portugal

Belgium	EUR 7.8 billion
Bulgaria	EUR 511 million
Czechia	EUR 2 billion
Greece	EUR 2.7 billion
Spain	EUR 21.3 billion
Croatia	EUR 1 billion
Italy	EUR 27.4 billion
Cyprus	EUR 479 million
Latvia	EUR 192 million
Lithuania	EUR 602 million
Malta	EUR 244 million
Poland	EUR 11.2 billion
Romania	EUR 4 billion
Slovakia	EUR 631 million
Slovenia	EUR 1.1 billion

and Hungary have already submitted formal requests which are being assessed. The Commission expects to put forward a proposal to grant support to Portugal and Hungary shortly. Member States which have not yet made formal requests may still do so.

Loans provided to Member States under the SURE instrument will be underpinned by a system

“We must do everything in our power to preserve jobs and livelihoods. Today marks an important step in this regard: just four months after I proposed its creation, the Commission is proposing to provide EUR 81.4 billion under the SURE instrument to help protect jobs and workers affected by the coronavirus pandemic across the EU. SURE is a clear symbol of solidarity in the face of an unprecedented crisis. Europe is committed to protecting citizens,” **President Ursula von der Leyen** said.



of voluntary guarantees from Member States. The Commission expects that the process of Member States finalising their guarantee agreements with the Commission will be completed very shortly.

“We must do everything in our power to preserve jobs and livelihoods. Today marks an important step in this regard: just four months after I proposed its creation, the Commission is proposing to provide EUR 81.4 billion under the SURE instrument to help protect jobs and workers affected by the coronavirus pandemic across the EU. SURE is a clear symbol of solidarity in the face of an unprecedented crisis. Europe is committed to protecting citizens,” President Ursula von der Leyen said.

“Workers are currently enduring enormous insecurity, and we need to support them to overcome this crisis and relaunch our economies. That is why the Commission proposed SURE, to help protect workers and facilitate the economic rebound. Today, we welcome Member States’ strong interest in accessing the cheap funding available under SURE to support short-time work schemes and similar measures, and we look forward to a fast decision process to start disbursing the loans,” Valdis Dombrovskis, Executive Vice-President for an Economy that Works for People, mentioned.

“SURE was one of the first safety nets we decided to put in place to guarantee that workers have an income while their jobs have been suspended, and that their employment is preserved. SURE will therefore help a swifter recovery. All Member States will soon have provided

a cumulative EUR 25 billion in guarantees, and we propose that the 15 Member States who requested support receive a cumulated EUR 81.4 billion in loans. This is a demonstration of European solidarity, of how together we are stronger for the benefit of all European citizens,” Nicolas Schmit, Commissioner for Jobs and Social Rights, added.

Paolo Gentiloni, Commissioner for Economy, in turn, said: “Short-time work schemes have played a key role in cushioning the impact on jobs of the COVID-19 pandemic. SURE is the European Union’s contribution to these essential safety nets. It will help to protect workers against unemployment and preserve the jobs and skills that we will need as our economies recover. The high demand from our Member States confirms the vital importance of this scheme.” ■

EBRD to Become Majority Green Bank by 2025

The European Bank for Reconstruction and Development (EBRD) is poised to reinforce its position as a leader in green finance with an ambitious plan to broaden and deepen its climate activities and become a majority green bank by 2025.

The EBRD's new Green Economy Transition (GET) approach for 2021-25 forms part of the Bank's overall strategy for the next five years, going to the Board of Governors for approval at the EBRD Annual Meeting on 7-8 October. If approved, GET 2021-25 will be the EBRD's new blueprint for supporting its countries of operation pursue a green, inclusive, and resilient recover from the impact of the pandemic.

GET 2021-25 will build on the success of an already ambitious GET approach for 2015-20, which the EBRD launched in the run-up to the Paris climate conference, where countries agreed to take action to keep global warming below. The first GET approach has already taken EBRD green investments to 46 per cent of its total investment last year, from an average of 24 per cent in the decade to 2015.

The EBRD is pursuing its ever more ambitious green strategy while continuing to offer short-term support to its countries and clients to address the implications of Covid-19. All EBRD



investments in 2020-21, worth EUR 21 billion, are already committed to helping these countries counter the economic effects of the coronavirus pandemic. An emergency support programme for infrastructure providers is helping ensure the provision of vital services and the continuation of sustainable infrastructure projects despite acute pressure from the pandemic.

While in the short term the need for liquidity cuts across all other investment considerations, the EBRD's new green approach looks further forward to provide planning tools that will also prepare the Bank to handle the post-crisis economic recovery phase.

“Covid-19 is a sharp warning shot bringing an increasing realization about the urgency of addressing the rising climate and environmental crisis. Accordingly, the new EBRD Green Economy Transition approach identifies specific policies



and investments in the short term which will support a green, inclusive, and resilient recovery. And it also defines a set of actions to support its countries of operations to progress towards a low-carbon and resilient future,” Josué Tanaka, the EBRD’s Managing Director for Energy Efficiency and Climate Change, said.

“We have a once-in-a-lifetime opportunity to rebuild much of the global economy post-Covid-19. Why rebuild it on the same premise as before – with high emission intensity and environmental costs – when we know that this is the past, not the future? We must use this opportunity to rebuild economies greener, fully considering the risks of climate change,” Mattia Romani, Managing Director, Economics, Policy and Governance, added.

GET 2021-25 offers more than a higher target percentage of green investments.

It also commits the EBRD to focus on aligning with the Paris Agreement goals, with a decision on full alignment to be considered within the next two years.

Another focus is enhancing policy engagement to develop long-term decarbonisation and resilience pathways. As the world moves into a

crucial period - the decade identified in the 2018 IPCC report as the time in which key changes must be made to allow global temperature rises to be kept below 2C - aligning different organisations’ approaches and metrics becomes ever more vital for success in moving towards a low-carbon future. Building closer partnerships at country and sector level as well as with MDBs and other institutional partners is at the core of the GET 2021-2025 approach. In implementing GET 2021-2025, the EBRD will also pay particular attention to the social implications of change. Gender considerations and the importance of a just transition, in which no one is left behind as carbon-intensive industries are reshaped, will be carefully examined, as will circular economy opportunities and green digital solutions.

The new GET 2021-25 approach will also broaden the range of the Bank’s green investments by innovating across a range of thematic action areas including energy efficiency, adaptation, green financial systems, industrial decarbonisation, sustainable food systems, energy systems integration, cities and environmental infrastructure, sustainable connectivity, green buildings and natural capital.

The combination of moving towards Paris alignment, expanding internally into new investment areas, expanding the scope of social inclusion work, and closer ties with the partners also working towards the goal of a low-carbon future keeps the EBRD at the forefront of the global move towards ‘joined-up’ greening.

To counter the pandemic’s economic effects, large-scale stimulus packages will be needed to kickstart activity. Linking this economic stimulus with ever more effective climate action – and helping the world “tilt to green” in time to avoid catastrophic levels of global warming - will be critical in accelerating the transition to a low-carbon economy. GET 2021-25 offers a clear and structured roadmap towards a sustainable future. ■

EY Partners with UiPath to Help Businesses Drive Hyper-automation

EY announces an alliance between UiPath, the leading enterprise robotic process automation (RPA) software company, and Ernst & Young LLP (EY US), to help businesses implement hyper-automation at scale. The alliance has also been established with the respective EY member firms in Romania, India, and Australia, with further global expansion planned in the future.

The EY Transformation Realized framework, an EY approach to help companies enhance their ability to adapt and drive value, brings tangible benefits to clients by placing humans at the center and providing technology at speed to scale innovation. As a leading provider of broad intelligent automation (IA) consulting services, EY teams provide industry-leading IA strategy and implementation support services across the globe with robust sector and process knowledge, to help clients generate long-term value. Together, with UiPath's market-leading hyper-automation platform, EY teams will help businesses create an effective digital workforce using automation to not only do things differently – better, faster and cheaper, but also to do different things – allowing organizations to accomplish new tasks not previously possible without automation.

According to a recent study, 'Gartner predicts 69% of routine work currently done by managers will be fully automated by 2024.' This dramatic growth in the adoption of RPA, as well as artificial intelligence (AI) technologies such as machine learning, virtual agents, natural language processing and computer vision, helps companies unlock new levels of efficiency and effectiveness, as well as drive digital transformation. In addition, as businesses reframe their future amidst the COVID-19 pandemic, organizations that have reached scale with automation efforts have experienced the resilience of the digital workforce while their global human workforce was suddenly and significantly disrupted.

The UiPath hyper-automation platform, and EY teams' IA methodology with reusable assets and accelerators, can help businesses achieve consistent and successful delivery of IA at the pace of hyper-automation. In addition, the alliance will assist organizations to implement hyper-automation at scale across complex global processes to achieve greater levels of business

transformation.

Specifically, the EY-UiPath Alliance encompasses IA strategy, automation operating model development, opportunity discovery, IA technology design and development, and postproduction IA managed services. Leveraging these capabilities, businesses can effectively adopt RPA and other IA platforms that help drive significant return on investment, mitigate risk and improve resiliency, while also improving customer and employee satisfaction.

"Automation is key to driving digital transformation and staying relevant in an increasingly competitive landscape. As one of the largest providers of UiPath implementation services for EY clients and the largest UiPath customer, based on our internal use of the UiPath platform, we are confident that we are aligning with a trusted and reliable RPA leader. Across industries, companies can leverage the combination of EY and UiPath to scale their automation programs, and benefit from operational cost reduction, improved process effectiveness and increased customer and employee engagement," Jeff Aldridge, EY Americas Intelligent Automation Leader, says.

"Advancing automation to help organizations become faster and more agile is the core of our brand. Aligning our hyper-automation platform with EY allows us to enhance our offerings for customers by layering IA strategy and implementation services with our trusted and leading solutions. Together, we are elevating the value of RPA and IA across all business sectors and helping companies recognize the power and benefits of integrating hyper-automation," Eddie O'Brien, Senior Vice President Operations and Partners, UiPath, adds. ■

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Pipeline Integrity Application by The Sniffers



The Sniffers has integrated the pipeline integrity application and the related services from DMC1 GmbH in its pipeline integrity service portfolio. This strong combination of experience, knowledge, and analysis capabilities, will help pipeline owners realize their integrity objectives.

DMC1 GmbH, founded in 2000 and operating from Schkopau in Germany, has developed a business application suite for pipeline owners over the past 20 years. This Pipeline Manager software and the related services, such as pipeline condition analysis, risk assessment, corrosion growth analysis, and third-party activity management, are essential for proper pipeline integrity management. DMC1 and The Sniffers both operate under the Intero Integrity Services group. DMC1 will now become part of The Sniffers' brand and organization.

According to Bart Wauterickx, The Sniffers' CEO, "the integration of the DMC1 portfolio into the existing pipeline integrity survey range of The Sniffers, gives clients

access to all best-in-class services, tools and expertise. Experience and knowledge from the field such as pipeline inspections, leak detection, corrosion surveys, and third-party supervision, are now combined with the expert analysis and software capabilities of DMC1. The increasing integrity demands require pipeline owners to focus on accurate pipeline data, high-quality inspections, and relevant analyses. The Sniffers' expanded range of tools and services support pipeline owners to operate a pipeline in a safe, compliant, and efficient way."

"Combining our 20 years' experience in the pipeline market with the capabilities of The Sniffers, is a unique opportunity to bring more value to our existing and new clients. They now have access to a complete Pipeline Risk and Integrity Management Solution called PRIMs® that brings all data and information together," adds Hartmut Gransow, Managing Director of DMC1 GmbH.

PRIMS – Pipeline Risk & Integrity Management Solution – is a highly performant cloud-based software platform to ensure operational efficiency, safety and regulatory compliance. PRIMs allows you to comply with regulatory requirements, control risks and ensure the environmental and economic sustainability of the pipeline and, most importantly, ensure the safety of your staff and the public.

Benefits of pipeline risk and integrity management software

- Improve data consistency in case of pipeline changes

All pipeline data is available in one system, which allows you to always work with up-to-date information if a pipeline is changed or extended.

- Factual information about the condition of your pipelines

Data from different risk assessments and condition analyses can be imported into PRIMs so you have a clear overview of your pipeline's condition and potential risks.

- Improve communication between stakeholders

All pipeline information is centralized in one system so different stakeholders are aligned, which improves communication between the different parties. ■

FUTURE
ENERGY
LEADERS
ROMANIA



Shaping a unique vision
of global energy

f FELRomania

Accelerating Adoption of Hybrid Cloud and Open Architectures in Oil and Gas

A new IBM-Red Hat-Schlumberger hybrid cloud accelerator will make operators more effective. The three parties entered into collaboration to accelerate digital transformation across the oil and gas industry.

The joint initiative will provide global access to Schlumberger's leading exploration and production (E&P) cloud-based environment and cognitive applications by leveraging IBM's hybrid cloud technology, built on the Red Hat OpenShift container platform.

The collaborative development will initially focus on two key areas:

- Private, hybrid or multi-cloud deployment of the DELFI cognitive E&P environment enabled by Red Hat OpenShift to significantly expand access for customers.
- Delivering the first hybrid cloud implementation of the OSDU™ data platform (the open data platform for the industry).

Through the agreement with IBM and Red Hat, Schlumberger has committed to the exclusive use of Red Hat OpenShift. Using the container platform will enable the deployment of applications in the DELFI environment across any infrastructure, from traditional data centers to multiple clouds, including private and public. This new way of hosting will offer the possibility to use multiple cloud providers and will address critical issues for customers, facilitating in-country deployments in compliance with local regulations and data residency requirements.

The DELFI environment incorporates cutting-edge data analytics and artificial intelligence, drawing upon multiple data sources, automating workflows, and facilitating seamless collaboration for domain teams. Many more oil and gas operators, suppliers and partners, from all regions of the world will be enabled to work from the industry's leading digital environment—built on a standard, open platform—where they can 'write once and run everywhere' when creating new applications.

"By expanding market access to the DELFI environment we take a

major step forward on the journey to establishing the open and flexible digital environment our industry needs," comments Olivier Le Peuch, chief executive officer, Schlumberger. "Our collaboration with IBM and Red Hat complements our established digital partnerships to produce an industry-first solution to overcome our customers' challenges. Together, we are enabling seamless access to a hybrid cloud platform in all countries across the globe for deployment in any basin, for any operator."

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“The logic, purpose, and differentiation of all businesses can now be rendered in code, which is why digital innovation has become the most powerful way to drive transformation and hybrid cloud is the lever that unleashes it. Together with Schlumberger, we are empowering a much broader group of participants to play a role in driving that transformation and helping the energy industry solve some of the world’s toughest challenges to emerge stronger.”
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powerful way to drive transformation and hybrid cloud is the lever that unleashes it,” said Arvind Krishna, chief executive officer, IBM. “Together with Schlumberger, we are empowering a much broader group of participants to play a role in driving that transformation and helping the energy industry solve some of the world’s toughest challenges to emerge stronger.”

“The energy industry is transforming as organizations look for efficient new ways to power their operations, adopt digital technologies to create a competitive advantage, and innovate and integrate workflows to make faster and better decisions,”

said Paul Cormier, president and chief executive officer, Red Hat. “A hybrid cloud foundation built on open source offers the flexibility, acceleration and innovation this digital transformation requires. Schlumberger has long been an industry leader and is bold in its vision for digital transformation in the energy industry. We look forward to working closely with Schlumberger to make the DELFI environment available everywhere with Red Hat OpenShift.”

Schlumberger supports many of the world’s most vital oil and gas operations and is on the forefront of digitalization across the energy sector. It has established the DELFI environment as the industry-leading cognitive E&P environment where today energy professionals access open APIs to work together, independent of role, workflow or physical location, and create solutions that significantly improve business operations.

The organizations intend to further their collaboration with the creation of a differentiated data management and operations solution for the OSDU™ data platform, enabling oil and gas operators to build, deploy and transition digital solutions with hybrid-cloud data infrastructures. This will foster wider collaboration and greater efficiency across many professionals in the E&P value chain.

Prior to this announcement, Schlumberger, IBM and Red Hat successfully piloted the new hybrid cloud deployment of the DELFI environment on Red Hat OpenShift, the leading Kubernetes platform, working with Red Hat and IBM Services, the world’s largest team of Red Hat certified consultants. The two organizations focused on demonstrating the flexibility and portability for compute, storage and data intensive exploration and field





“At Schlumberger, to address the historical imbalance in global supply and demand for oil today, we ensure our performance partnerships include an eye toward digital technology, sustainability and New Energy. We view digital in two ways: the acceleration of digital adoption among our customers and across their workflows and operations; and second, the impact of digital on our own operations. This is why we are collaborating with IBM and Red Hat. Together we will expand and evolve an environment where energy professionals in all countries across the globe can collaborate using data and new software applications for digital innovation.”

affirms Trygve Randen, Global Director Digital Subsurface Solutions, Schlumberger.

development applications.

IBM’s collaboration with Schlumberger is part of the company’s new commitment to invest in accelerating adoption of hybrid cloud and open architectures. IBM is targeting essential industries, such as energy, running the crucial processes of the world. These efforts are increasing in importance as organizations navigate the impacts of the pandemic and economic downturn, which is creating an acute need for speed to market, flexibility and nimbleness to encourage innovation.

Manish Chawla, a member of IBM’s Industry Academy and

IBM Global Managing Director for Energy & Natural Resources, along with Trygve Randen, Global Director Digital Subsurface Solutions, Schlumberger, explain what to expect from the collaboration and how it could accelerate the industry’s digital transition.

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“In addition to IBM’s leadership in enterprise technology innovation, we also have a long history with clients in the energy industry. We have worked with Schlumberger for a number of years, supporting their efforts to drive efficiency in their enterprise functions, and helping many energy companies modernize their operations,” adds Manish Chawla.

The latest technology collaboration will help place new technology capabilities in the hands of many more energy companies, helping them to accelerate their digital transformation. This translates to more efficient operations, driving down costs for the consumer as well as enhancing safety and helping to reduce environmental impact through operations that have first been fully optimized digitally, before the physical extraction of oil and gas.

What is DELFI?

The ‘DELFI cognitive E&P environment’ is a secure, cloud-based software technology that enables team collaboration across the entire industry lifecycle. It is an open, scalable, and fully managed environment, seamlessly connecting people, data and leading software applications across exploration, development, drilling, production and midstream to produce a high fidelity and evergreen digital model for planning and operations.

User growth of DELFI has exceeded an impressive 400 percent since 2019. Still, while the platform offers access to a number of public clouds,

half of the oil and gas companies of the world are unable to easily access these cloud platforms. This is due to constraints around data sovereignty, reach of public clouds and the specific architectural choices companies have employed.

“Within these boundaries we saw an opportunity to apply hybrid cloud built on open technologies. This allows for workload portability, orchestration and management across multiple infrastructure environments allowing the DELFI environment to be available across a variety of infrastructure choices. For example, in-country clouds, on-premise, and private clouds. In other words, it fosters an ecosystem where ideas from customers, suppliers and partners can be brought together and gain the benefits without being constrained by their location,” points out Manish Chawla.

Main challenges

A key aspect is capturing data. There’s a principle in the industrial world—“as designed, as built, as maintained”—that’s critical and has historically been under-developed in the exploration and production industry, explains Trygve Randen.

“Take the example of building a tunnel through a mountain. Once it’s built, is the design available, in all its gory detail, to whoever is going to maintain it? You’re constantly maintaining, upgrading, improving and operating, so that same data should be carrying through for the right people to access. Many processes in the industry—even something like finding and analyzing a seismic image underneath a location and deciding where to drill a well—requires multiple professionals, often working for different organizations. They’re all using different applications, and if you have to copy data from one application or database to the next, you can have distortions, errors. You can lose time,” he mentions.

“The mission-critical workloads that run large businesses and institutions often span extensive IT estates. In fact, the average company today draws data from more than 400 sources, and it can run as high as 1,000 sources or more. The idea is to create a single source of truth. We have shown that adopting a hybrid cloud architecture can be 2.5 times more valuable than relying on public cloud alone. Red Hat’s OpenShift allows customers to containerize their applications—essentially, to encapsulate them and make them cloud-portable. So, instead of needing to rewrite software code for each cloud provider, the code can be written once

and encapsulated for use in any technology set-up. That includes traditional data centers as well as public, private and edge clouds. It helps open up a truly global market,” highlights Manish Chawla.

Open Subsurface Data Platform

The OSDU, or more precisely, the Open Group Open Subsurface Data Universe Forum is a cross-industry collaboration to develop a common, industry-standard and open basis for oil and gas data. Its output is free code as well as data standards that companies, organizations or specialist providers can use.

By streamlining access and use of data the industry expects to drive higher performance and greater efficiencies, including the use of new data-driven workflows and innovation using artificial intelligence.

Schlumberger announced in August last year that it would open-source its data ecosystem—part of the DELFI environment—and contribute it to the OSDU Forum to accelerate the delivery of the OSDU data platform.

Schlumberger is committed to supporting the ongoing development of the OSDU data platform, which together with the contributions of others will provide industry-leading capabilities, knowledge and experience.

About Red Hat

Red Hat is the world’s leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.

About IBM

IBM combines technology with industry expertise to help Oil & Gas clients digitally reinvent their businesses for resilience and sustainability. Pioneering advances in materials science from IBM Research accelerate energy transition. Data science and AI take the guesswork out of exploration. Predictive asset management raises production throughput. Supply chain insights and blockchain build trust and transparency across the downstream ecosystem. Customer experience experts reshape consumer connections at the gas pump or electric charge station. Through these solutions IBM helps Oil & Gas clients emerge smarter. ■



Supercharger

TESLA: Shaping Tomorrow

Tesla, Inc. was founded by Elon Musk, its current CEO, and Jeffrey B. Straubel, Martin Eberhard, and Marc Tarpinning back in 2003. It seemed to be a company that focused on the design, development, manufacturing and sale of electric vehicles, but it has turned out to be much more than that.

by Evgenios Zogopoulos

They sparked the flame for the Electric Vehicle (EV) market a long time ago but they seem ready to expand strongly in energy generation, energy storage systems, robo-taxis and much more. It also develops vehicle service centers, supercharger station networks and also engages with artificial intelligence.

The company operates the segments of Automotive and that one of Energy Generation and Storage. The Automotive segment includes the design, development, manufacture and sale of electric vehicles. The Energy Generation and Storage segment includes the design, manufacture, installation, sale, and lease of stationary energy storage products and solar energy systems, and sale of electricity generated by its solar energy systems to customers. It also develops energy storage products for use in homes, commercial facilities and utility sites.



Powerwall



Solar Panel



Solar Roof

Tesla vision

Tesla has proved over and over again that it's here to lead the way and change the world. Early on, they adopted a unique approach with their go-to-market strategy and putting their first wheels on the streets. They focused on creating a high-end, powerful car instead of trying to build a relatively affordable one, easy to mass produce.

Elon Musk specified back then the company's mission, "If we could have (mass marketed) our first product, we would have, but that was simply impossible to achieve for a startup company that had never built a car and that had one technology iteration and no economies of scale. Our first product was going to be expensive no matter what it looked like, so we decided to build a sports car, as that seemed like it had the best chance of being competitive with its gasoline alternatives." Enter Tesla Roadster; the rest is history, still being written. By the time Tesla introduced their sedan, the Model S, in June 2012, it had stopped producing the Roadster. They began delivering their first SUV, the Model X, in September 2015. The first Model 3 deliveries kicked off in July 2017.

Once Tesla established its brand and gained momentum with its concept car, it reiterated its business model and pursued a three-pronged approach with selling, servicing, and charging the electric vehicles they produced.

Contrary to the legacy industry players and the older competitors, who distribute and sell through franchised dealerships, Tesla uses direct sales. They established a vast international network of



approach offers a better customer buying experience. Every staff member in the showroom, works for Tesla and their own goal is to sell more for the company.

Tesla has close to 500 locations, including service centers, all over the world. They combined many of their showrooms with service centers, based on the idea that a service center in a new area implies increased customer demand. Tesla car owners can charge or service their vehicles at the service centers or the Service Plus locations. The futuristic feature here is that in some cases, no onsite technician is required at all as the car can wirelessly transmit data so Tesla technicians can review and fix problems online without ever needing to physically touch the car.

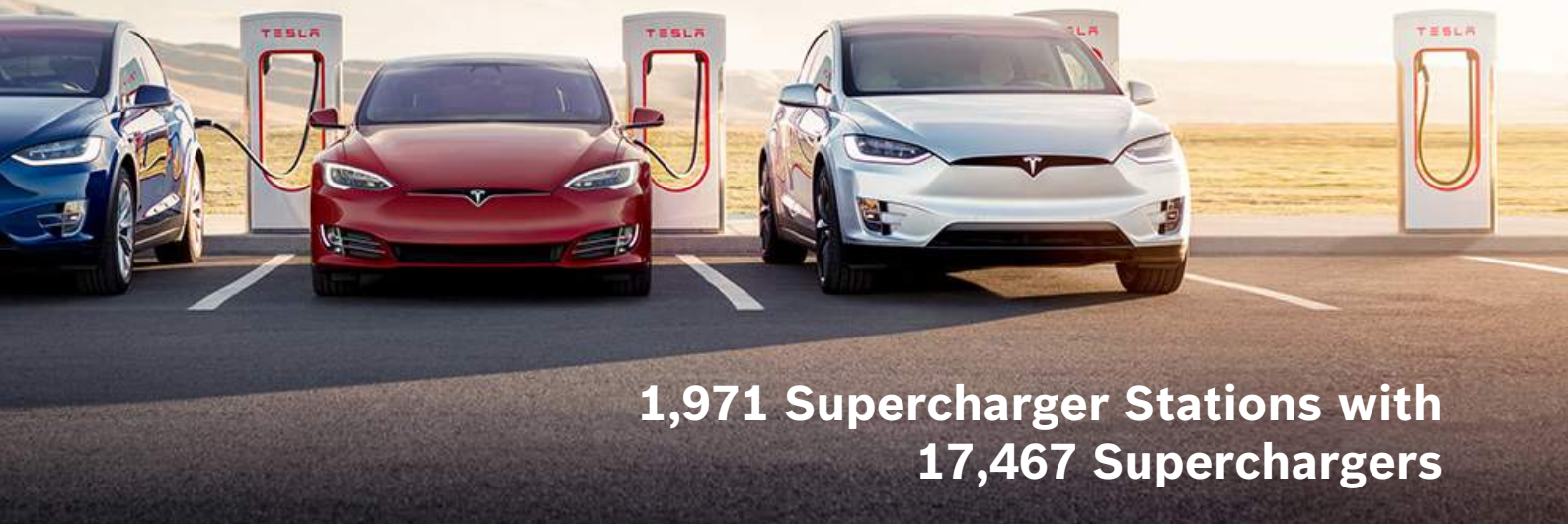
When it comes to their Supercharger network, Tesla has created its own network of charging stations, where car owners can fully charge for free their Tesla vehicles within about 30 minutes or less. The rationale behind the idea is to facilitate and accelerate the rate of adoption for electric cars. Without the ability to charge on the go electric cars faced a huge challenge for scalable adoption. Tesla continues expanding the network of Supercharger stations in the United States, Europe, and Asia.

Based on the notion of pushing for sustainability, and Tesla's mission "to accelerate the advent of sustainable transport", there are



"If we could have (mass marketed) our first product, we would have, but that was simply impossible to achieve for a startup company that had never built a car and that had one technology iteration and no economies of scale," said **Elon Musk**.

company-owned showrooms and galleries, in prominent urban areas. Through the direct ownership of the distribution channel, Tesla gained an advantage in the speed of reiterating its product development. Additionally, that implies higher margins, through cutting out the middle-man. Finally, it was also proven that this



1,971 Supercharger Stations with 17,467 Superchargers

additional areas of operations. Tesla engaged with powertrain systems and components to other auto manufacturers as well as a line of home batteries, the Powerwall, serving as energy storage cell. Tesla also sold solar panels, full solar roofing along with the Powerwall. Additionally, Tesla engaged with standard loans and leases. And they even provided some downside protection on a vehicle's value in case of reselling it. It is also rumored they would eventually break into the Insurance sector as well.

Is Tesla just a car company?

Maybe it's about time to start scratching the surface of the discussion about the 'Software Component'. The essence was always there, but it was not always visible to the broad audience. After all, what would a car manufacturer have to do with developing software? Many analysts scrambled to find similarities between other tech companies like to Apple Inc. (AAPL) and Alphabet Inc. (GOOG) subsidiary Google. Strangely, this conversation started due to Tesla (TSLA) stock and its valuation which skyrocketed really early on, after the company's public listing in the stock market. One cannot simply avoid talking about Tesla's stock and its crazy high valuations that still no analyst can accurately explain.

There are several points of resemblance between Tesla and other giants of the tech sector when it comes to their valuation and market capitalization. To start with, Tesla's valuation in the markets had skyrocketed even when it was reporting losses. That is a very common characteristic of the so called 'Growth' stocks that are highly anticipated and gain momentum due to speculation that they will eventually dominate their markets.

Tesla is also very keen on breaking and proving the inefficiency of the legacy business models within the automotive industry; that is one of the reasons this company generates love for its followers and hate for the others; maybe also because Elon Musk makes sure to openly mock doubters and other non-believers. We seldom find analysts, journalists, industry stakeholders or even common people being stoic or neutral when it comes to Tesla. Elon Musk and his company evoke loyalty and awe as well as hatred and disbelief similar to those for iconic tech companies such as Apple.

At the end of the day, the key point lies in the fact that Tesla develops cars like they develop software; they strive for agility, efficiency and quality. They also create software on their own unique hardware, like Apple, Microsoft and other tech giants. This approach does not only enable Tesla to optimize its cars' software functionality continuously but it is the sharpest contrast to the legacy automaker industry model where after you get the car, you're pretty much on your own with it; it can only get worse, not better.

Tesla's strategy differentiation

No one claims that Tesla invented the electric car or anything



Powerwall Specs

Energy Capacity

13.5 kWh
100% depth of discharge
90% round trip efficiency

Power

7kW peak / 5kW continuous
Seamless backup transition
Pure sine wave output

Size and Weight

L x W x D
45.3" x 29.6" x 5.75"
1150 mm x 753 mm x 147 mm
251.3 lbs / 114 kg

Installation

Floor or wall mounted
Indoor or outdoor
Up to 10 Powerwalls
-4°F to 122°F / -20°C to 50°C
Water and dust resistance to IP67

Certifications

Meets US and international safety standards
Meets US and international EMI standards

Warranty

10 years

close to that; but they are indeed responsible for bringing the notion of electric vehicles in the lives of most of us. They not only spread the news like a wave, they made it look cool, they made much cheaper and they did all that while creating breakthroughs in terms of technology, go-to-market strategy and workflow efficiency. Tesla's unique business model, which keeps direct control over sales and service, is just one of the reasons the company is doing so well.

Tesla invented what seems to become the most successful business model for introducing electric cars to the broader audience. What other automakers did was to invest 'just in case' or for PR purposes in electric vehicles; for Tesla it was a one-way ticket.

It needs to be addressed though, that even if Tesla might seem to be steering the electric car market of the 21st century, the traditional automakers are indeed bigger, richer and still powerful. Companies such as Toyota, Ford, GM, Honda, BMW, Mercedes are also now investing significantly in EV development programs. Tesla has delivered highly ranked vehicles so far, but traditional automakers have deep pockets, already well-established supply chains, and global market reach. The sleeping giants seem to have awakened by the constant and annoying poking of Tesla.

Tesla's Model 3 was the US's top-selling luxury car for 2018, within the first year of its launching. Tesla still faced significant production

challenges, struggling to keep pace with customer demand. Back in 2018 they managed to deliver about 7000 Model every week. This number is ramping up real fast, even amidst the crisis. One of the strategic power moves Tesla made for this was their Gigafactory 3 in Shanghai which broke ground back in 2019. Gigafactory 3 even if it was scrutinized, due to Chinese inspections and other rumors, successfully delivered immense impact. Model 3s coming out of Gigafactory 3 proved to be pivotal to Tesla's powerplay and will also nullify the challenge if import tariffs for one of the largest markets for EVs globally.

Tesla is also the pioneer of autonomous driving technology. Their Autopilot assist system includes auto-steering, automated lane changing, traffic cruise control and other features whose combination offers a complete self-driving experience while keeping the driver in ultimate control of the car. Elon Musk himself mentioned: "I personally tested the latest alpha build of the full self-driving software when I drive my car. And it is really, I think, profoundly



Solar Panel Specs

Wattage
340 W

Weight
47.4 lbs

Ingress Protection Rating
IP56

Warranty
25 year performance
guarantee

Dimensions
68.5" x 40.6" x 1.57"
(including frame)

Frame Type
Black anodized aluminum

Certifications
UL 1703, CE-Compliant,
IEC 61215 (Ed. 2),
IEC 61730 (Ed. 1)

Operating Temperature
-40°F up to +185°F

better than people realize; It's almost getting to a point where I can go from my house to work with no interventions, despite going through construction and widely varying situations."

Another pivotal differentiation with traditional automakers is that Tesla tries to own as much manufacturing as it can in-house, including batteries and drive trains. Most of the other players rely heavily on other suppliers for almost every single part of their production chain. Tesla is becoming increasingly autonomous, at scale, as it spreads production costs for batteries across its energy and storage unit.

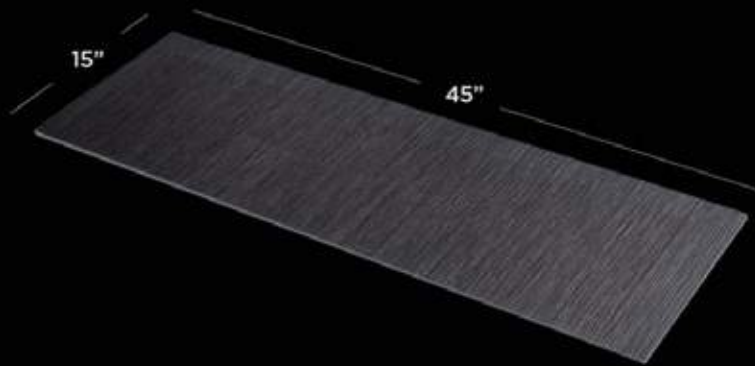
Tesla spends no money on advertisement for their cars. They rather use the software 'inbound' sales model, compelling the 'smart' consumers to find them and come to them. That is evident from the way they treat the whole customer experience journey, from their galleries all the way to their very nimble on-line sales approach.

One more thing that definitely needs to start being addressed is the very much speculated 'Battery Component'. The Tesla battery-powered cars are dramatically simpler than their internal combustion competitors. Some estimations bring the internal car parts to around 20, contrary to the 2000 in a usual internal combustion engine. This level of simplicity immensely reduces the consumers total cost of ownership. Tesla has also acquired smaller battery making

companies, developing cutting edge technology, and has been working for a long time in increasing dramatically the car's range. In Tesla's upcoming 'Battery Day Event' it is rumored that Elon Musk will reveal the 'Million Mile Battery'. On top of that, the battery business can and will probably develop into an autonomous segment, with Tesla selling their batteries to other companies, as it seems they are years ahead of competition in terms of technology.

We also have the ethical standpoint, where Tesla seems to also be taking the lead. Part of Elon's vision has been and still is to push for Greener solutions (solar in particular) and that is reflected in Tesla's DNA. Traditional automakers have been trying to offer electric car solutions but only as a small fragment of their product portfolio, more like a 'nice to have' approach.

Volkswagen, with their emission scandal still fresh, admitted through its chairman that Tesla posed indeed a great competitive threat. One of the most significant challenges Volkswagen and other automakers are facing is what Tesla has developed



Solar Roof Specs

Tile Warranty
25 years

Power Warranty
25 years

Weatherization Warranty
25 years

Roof Pitch
2:12 to 20:12

Hail Rating
Class 3 ANSI FM 4473
(up to 1.75" diameter hail)

Wind Rating
Class F ASTM D3161
(up to 166 mph winds)

Fire Rating
Class A UL 790
(best fire rating)

as their competitive 'mote': they lack the technological expertise to compete with the software-like developed car. Tesla has been and still is doubling down on this aspect.

Players of the old legacy car industry automakers are now starting to see the big picture that Tesla has been painting for so long; they will eventually follow and reallocate their vast resources in order to become software companies and start becoming more efficient but the real question still remains: how much ahead is Tesla?

Tesla as a stock

Of course, we cannot avoid the discussion about Tesla's stock and the company's valuation, which has reached almost astronomical heights. Even with their delivery numbers accelerating immensely over the first years (2014 to 2018 sales have reached 570% increase), Tesla recently started showing signs of profitability, with Q2 2020 being the fourth consecutive profitable quarter. It has to be underlined though, that the company's priorities have been research and development and manufacturing, which absorbed tremendous amounts of cash.

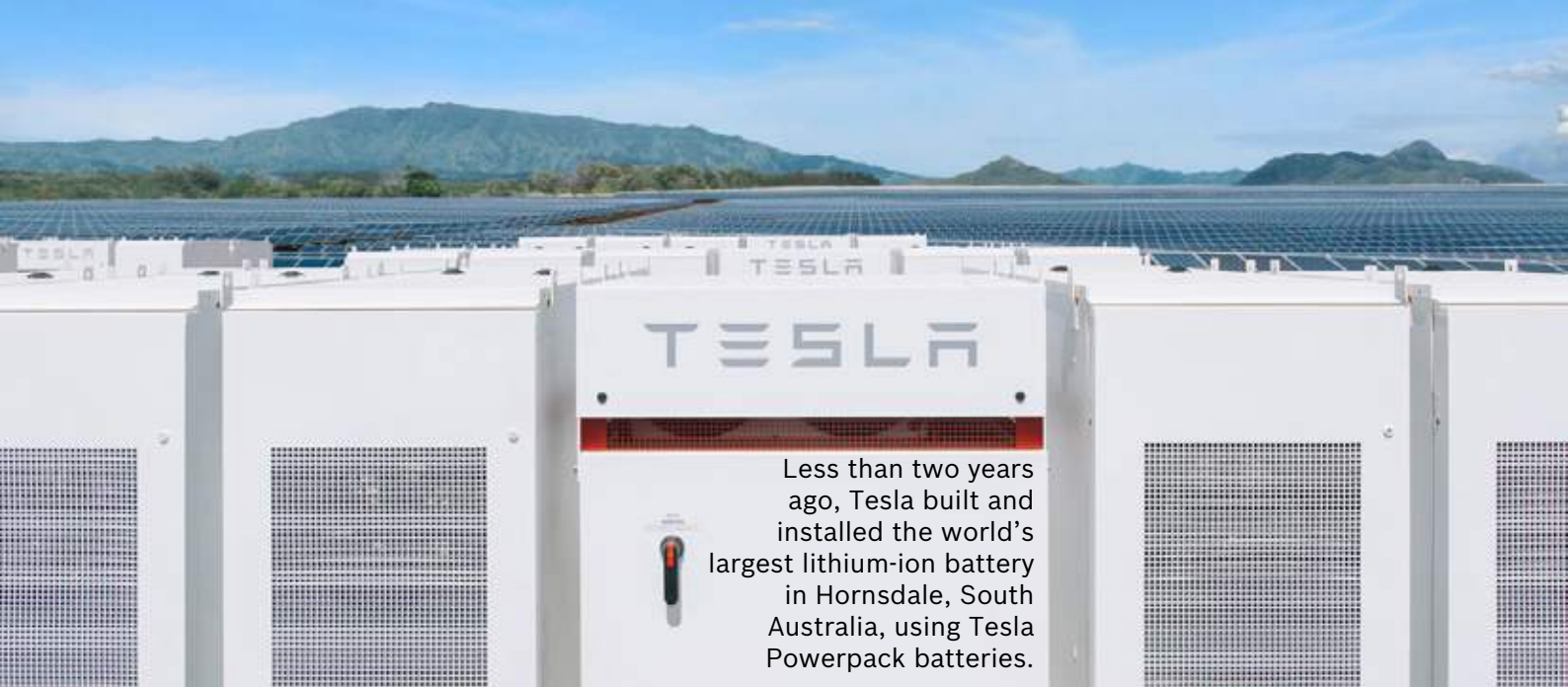
The acceleration continued, with company's revenue reaching 83% to USD 21.5 billion back in 2018 driven by an 87% increase

in car sales revenue. The number of cars sold in 2018 reached 138%, meaning about 250 thousand vehicles compared to 2017. Streams of revenue increased significantly from Service sales and from the energy segment.

The stock, which reached a low of about USD 350 in the March crash has quintupled since then and crossed USD 2000 several times before the company decided to apply a 5/1 split, when stock owners received dividends of 4 more stock for each one they had at 1/5 of the price (so the value remained the same).

The company's market capitalization which has reached almost USD 350B is "discounting far more than cars," Morgan Stanley analyst Adam Jonas mentioned adding that: "Tesla's performance is seen by some as breathing all the air in the room with respect to the outlook for competing electric vehicle initiatives, particularly amongst legacy players."

The stock currently trades at USD 400 per share and the upside seems to be significant, in anticipation of the upcoming 'Battery Day', where it is expected that Elon Musk will unveil



Less than two years ago, Tesla built and installed the world's largest lithium-ion battery in Hornsdale, South Australia, using Tesla Powerpack batteries.

Megapack



lots of innovative breakthroughs in terms of Battery technology, manufacturing and self-driving. Especially for that last aspect, Tesla has come under severe scrutiny in the past for making potentially exaggerating claims about the capacity of their self-driving systems. It remains to be seen if they will be able to deliver, as a lot of new tremendous opportunities might open up (self-driving taxis etc.).

Tesla shaping tomorrow

In an upcoming article we will review in further depth the competitive technological moat that Tesla seems to have built, protecting their head start.

One thing that no one can deny them is that this company seems to have shaken up for good the very traditional and potentially stagnant automotive industry. They have introduced and made widely accessible technical features that would sound like science fiction only years ago; truth is that some of the things Tesla claims still sound like science fiction; if we want to take a step further, to many analysts and traditional industry stakeholders, Tesla seems to be science fiction as a whole.

Maybe what we are seeing is just Tesla shaping tomorrow!



Energy Tech Day 2020

BRINGING TOGETHER LEADING
ENERGY EXPERTS

by Lavinia Iancu
Photo by Justin Iancu



In the time of pandemic, Energy Industry Review has introduced a new conference format - **Energy Tech Day 2020**, an exquisite coverage of Oil & Gas Tech and Power and Energy Tech conferences.

Energy Tech Day 2020, the communication platform for senior management and top executives working in the energy industry in Romania, brought together leading energy experts and highly skilled professionals to share their experiences on ground-breaking technologies, strategies, and investment programs.

The **'Role of Oil, Gas and Renewables in a Fast-evolving Energy Market Towards Achieving the 2030 Agenda and Sustainable Development'** was the main theme for this high-level conference held on September 23, 2020, in Bucharest.

During a 3-session conference, the participants discussed investments, innovation and modernization programs implemented by energy

companies to foster or further scale up oil, gas and renewable energy prospects up to 2030, and addressed challenges and opportunities of the energy sector in Romania.

Investments of approximately EUR 22.6bn by 2030

“We are at the start of a new energy paradigm. It is important to adapt together to changes brought by it, in an integrated and flexible manner, for a greener and socially sustainable future. The 2030 Agenda for Sustainable Development and the European Green Deal are opportunities and challenges alike. Together we have the opportunity to develop new energy ecosystems, increase the degree of network interconnection, to decentralize, to invest in people and in digitization, to reach the goal of climate neutrality,” said **Lucian Petrica Rusu – State Secretary, GENERAL SECRETARIAT OF THE GOVERNMENT OF ROMANIA**, in the opening of the event.

“For the future of the energy sector, it is important that in the following period most of the profit be reinvested. Moreover,

according to the Integrated National Energy and Climate Plan, to reach the targets assumed by Romania, during 2021-2030 total investments of approximately EUR 22.6bn will be necessary. Among sources of funding for them we find structural funds, the InvestEU program, the Just Transition Fund, the Modernization Fund and, obviously, the state budget.

For the following seven years approximately 25% of the EU budget will be directed to projects that contribute to environmental protection and the reduction of carbon dioxide emissions. Energy transmission companies were asked to accelerate projects in this field so that they can be funded including under the European Green Deal.

We currently have a stable, interconnected energy market and we are an important player in the region. But the level of interconnectivity of the national power grid is expected to grow at an accelerated pace, which involves especially investments to increase the capacity and for interconnections. An example is the Overhead Transmission Line Cernavoda-Stalpu project, carried out by Transelectrica, a total investment of over EUR 58mln which involves consolidation of the cross section between the western coast of the Black Sea (eastern Romania) and the rest of the European system. For its part, Transgaz estimates investments of almost EUR 5 billion in the development of the national gas transmission system (NTS) and in the expansion and upgrade of underground storage facilities. Moreover, under the National Investment and Economic Relaunch Plan prepared by the Government of Romania, we plan to allocate in the coming years a total of approximately EUR 15bn for investments in energy and gas," the official pointed out.

TOWARDS A FUNCTIONAL ENERGY MARKET IN ROMANIA: Prospects for Oil, Gas and Renewables up to 2030

Robert Chirca – Deputy General Manager, ROMGAZ, highlighted the most important aspects in company's activity, the investment programs, as well as the development directions for the following period, emphasizing the role of investments in ensuring a sustainable development. The vision of an integrated company, such as the largest gas producer in Romania, focused on profitability and competitiveness, includes diversification of the business profile, investment in people, ambitious projects and, in particular, focuses on the sustainability strategy. Therefore, within the strategy, Romgaz scheduled for the following period investments of RON 15.7bn. The company aims to maintain its production and reduce its natural decline, considers collaborations with companies active in the Black Sea area and wants to expand the activity in the wind, solar, geothermal, and even biogas areas. Diversification will also take place in the field of petrochemistry, by transforming natural gas into methanol, Romgaz planning to build a Greenfield unit for this purpose.

Projects that cover the electricity area were also mentioned: Iernut power plant, with a capacity of approximately 430 MW, and a new

power plant, to be built in Mintia area.

THE SNIFFERS presentation, having as theme 'Sustainable gas developments in line with the European Green Deal' focused on strategies for a cost-efficient transformation of the energy sectors by 2030 and monitoring in order to detect emissions in this area of activity and not only.

Considering the goal of climate neutrality by 2050, **Adrian Staicu – Regional Manager South East Europe,** highlighted a series of initiatives of his company to protect the environment and boost the green economy.

"Energy is an attractive sector to reduce emissions," notes Adrian Staicu, reminding that methane, the primary focus for O&G industry, is causing 25% of man-made global warming and that methane reductions can have immediate impact. Lowering global O&G methane emissions with 45% would achieve as much climate benefit in the next 20 years as closing 1000 coal plants.

As the world's biggest importer of natural gas, the EU is facing pressure from investors, climate campaigners and some fossil fuel companies to set binding methane emissions limits on gas sold in Europe. Therefore, the EU plan to curb emissions of methane - Methane Strategy - is long-awaited.

Oana Bucur – Digitalization Task Force Leader, FPPG, brought to the attention of the audience the 'Necessary regulatory changes to enable Digitalization in the Oil & Gas industry'. The main issue faced by the industry is represented by the fact that certain documentation is classified (e.g. documentation of resources and reserves, concession agreements) under NAMR Order 264/2020, former 202/2003; 2/2013) and classified documentation cannot leave Romania (GD 585/2002 on handling Classified Information). She also stated that best in class technologies such as Cloud Computing, Analytics, which imply storing of data in other countries, cannot be used, leaving the Upstream sector away and behind all other sectors and industries. Therefore, there are a number of opportunities that the industry is missing, such as: fast access to data and models by shortening decision time; reducing processing time of reservoir models; reducing drilling time by real-time monitoring; increasing success rate in exploration and appraisal activities by processing large volumes of seismic data in the Cloud; increasing production; reducing costs.

In terms of proposed solutions, Oana Bucur mentioned the update of the NAMR Order 264/2020 (former Order 202/2003; 2/2013), so that the Upstream data can be excluded from the



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considered list of classified information, following that Cloud adoption be enabled (possibility to store data outside Romania).

The first Romanian offshore gas development project in the last 33 years – MIDIA GAS DEVELOPMENT (MGD), as well as GSP challenges for the Black Sea, were presented by **Bruno Siefken – Senior Vice President, GSP HOLDING**. He made a brief of MGD, showing the main characteristics of the project. MGD Project consists of 5 production wells (1 subsea well at Doina field and 4 platform wells at Ana field), a subsea gas production system over the Doina well which will be connected through an 18 km pipeline with a new unmanned production platform located over Ana field. A 121 km subsea pipeline will ensure the delivery of gas from Ana platform to the shore, where a 4.1 km underground pipeline will connect to the new gas treatment plant (GTP). The pipelines of over 120 kilometres will carry gas to Romania and cover 10% of the country's consumption needs, he added.

The operations are performed with the GSP Bigfoot 1 vessel, a barge with a dynamic positioning system classified under ABS register, for the laying of

submarine pipelines and for heavy lift works. The pipelay system is based on the single joint S-lay principle. The barge can install 6" to 60" diameter pipelines.

Iulian Popescu – Deputy Managing Partner, MUSAT & ASOCIATII, set out to answer the questions: *Upgrading the laws - incentive or obstacle in the energy market? Directly negotiated contracts - where to?* He defined bilateral power purchase agreements (PPAs), making a brief history thereof in Romania for the period 2001-2020, also mentioning that the Lawmaker has prohibited this practice with the entry into force of the Electricity and Natural Gas Law no. 123/2012 (the Energy Law). However, the current legislative framework at national level, updated by various new regulations, does not provide a clear vision of what will happen as of January 1, 2021, Iulian Popescu said. He also mentioned the two European laws, the Directive 2019/944 and the Regulation 2019/943, which Romania has the obligation to implement. The first sets out rules for the production, transmission, distribution, supply, and storage of electricity, as well as aspects on consumer protection, and focuses more on rules on consumer rights and retail electricity markets. It must be transposed into the national law by January 1, 2021, Romania having the freedom of deciding on how to fulfill the objectives of the Directive. The second reviews the rules and principles of internal market for electricity of the EU; it encourages the free formation of prices and the avoidance of actions that prevent the formation of prices on the basis of supply and demand; and focuses mainly on

wholesale market rules and network operation. It will be applicable as of January 1, 2020, has a binding nature and must be applied in its entirety. Failure to comply with the aforementioned shall result in consequences at European Union level, not at all to be neglected, culminating in the inevitable failure to reaching Romania's target of having a 30.7% share of energy from renewable sources in the final gross energy consumption in 2030. In this situation, the prospects for Romania involve the conclusion of long-term power sale-purchase agreements with customers (PPAs) outside centralized markets and preparing a support mechanism of the Contracts for Difference (CfD) type.

Gabriel Paal – Executive Vice President EU, PROUDFOOT, analyzed the implications of the current crisis period on Upstream, Midstream and Oil Field Services (OFS). Among the most important observations are the following.

In the long-term, companies will focus on shifting to 'cleaner' energy options, such as LNG, offshore wind power, and hydrogen.

Midstream will continue to be a value-added component of the O&G industry, we will see some OPEX realignments, consolidation of projects, and towards the end of the decade a broader review of the infrastructure incorporating potentially an increase in digitalization and predictive maintenance.

Most of the oil field service companies were already in a weak balance sheet position following the 2014 crisis. To survive, a radical approach is required, including consolidations, capacity reduction and capability upgrades. This is the time to restructure and look at options such as asset liquidation, supply chain reconfiguration, partnerships, and rapid technological acceleration.

New business will continue to emerge in the energy transition space, but at present it is unclear what form the return for some of these less mature enterprises such as Hydrogen and Carbon Capture will take. The oil and gas majors, as we have seen with recent announcements from Shell and BP, will look to invest in this sector to reduce their carbon footprint.

Proudfoot believes that the common thread that will support the Oil & Gas sector moving forward is the continuing and progressive implementation of digitalization, which will drive efficiency and deliver a greater positive impact to the bottom line, Gabriel Paal concluded.

CONNECTING ENERGY MARKETS: Romania in the regional landscape framework

Digital transformation strategy and best solutions for energy transition within the company were the debate topics for **Cristian Secosan – CEO Romania and Moldova, SIEMENS**.

Therefore, the digital transformation proposed by Siemens integrates hardware, software, and state-of-the-art technologies. To help customers tap the potential of Industry 4.0, Siemens is already providing a portfolio of solutions that includes the main elements of a digital company. Having scalable solutions at hand, companies can invest in Industry 4.0 to digitize in a fully integrated manner the

entire chain of the production process.

Digital twin, for example, an integrated data model that can manage the entire production facility, can be implemented including for existing facilities, of brownfield type, increasing flexibility and efficiency.

MindSphere, an open IoT operating system based on cloud technology, creates connection with the Internet of Things. This means that producers can analyze their production facilities and products in use, and the information can be transmitted to the entire chain of the production process, for continuous optimization. MindSphere allows industries around the world to connect their equipment and physical infrastructure to the digital world. Working with several protocols at the same time, it uniquely simplifies the connectivity challenges targeting most of the industry - allowing each company to become a digital enterprise. Gathering data, through MindSphere, from any number of smart devices connected, integrated digitized systems make possible the real-time analysis of operational data. The prospects obtained from this analysis then lead to optimized processes, benefits in terms of resources and productivity, the development of new business models and cutting the costs of operations and maintenance costs.

COMOTI Turbine Engines Research and Development Institute (INCDT COMOTI) - the only unit in Romania specialized in the development and integration of scientific research, constructive and technological design, manufacturing, experimentation, testing, technological transfer and innovation in the field of aviation turbine engines, gas turbine industrial machines and high-speed blade machines - took part in the conference with *Customized solutions for natural gas exploitation and transportation*.

Referring to energy saving solutions, **Leonard Trifu – Marketing Manager, INCDT COMOTI**, presented the compression equipment for natural gas: Screw Compressors CU64, CU90, CU128 made under GHH Rand License; Screw Compressors High Pressure CU128, CU200, CU220; Expander – Electric Generator; Centrifugal Oil-free Compressors for air and gas (EGC and CCAE); Power Driver: electric, piston engine or aviation turbine; Skid/Package Assemblies, and gas turbines applications, such as implementation of the 1st Romanian cogeneration power plant (electric and thermal with gas turbines), in cooperation with Pratt & Whitney Canada.

He also pointed out the specialized services



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offered by COMOTI: Automation for GT, Compressors and Electrical Engineering; Compression and Electrical Equipment Assembling, Maintenance, and Service; 3D Modelling; CFD Analysis - vibration, stress and thermal; Composite parts development; Machining prototypes and small series; Test benches for GT and Compressors; Metrology.

Unlocking the energy efficiency potential of smart lighting was the theme of the presentation delivered by **Razvan Copoiu – CEO Romania and South Eastern Europe, SIGNIFY**. Signify is the world leader in lighting, providing high quality energy efficient lighting products, systems, and services.

With the rapid urbanization and population growth, cities are facing major challenges. They must ensure safe and quality living spaces for citizens. Yet, at the same time, with limited budgets and resource constraints, they must optimize their operations by embracing sustainable practices and technology such as digitization. More importantly, cities must become smarter so any investment should be future ready types, to take on more innovative scaling.

For example, cities may start with smart lighting,

but they may want smart lighting system to fit into a broader smart city agenda, as one of the enabling pillars to provide data/information exchanges digitally, in order to improve the lives of citizens, showed Razvan Copoiu.

Talking about connected lighting, he defined the concept of *Interact City* - a connected lighting system and management application that enables to remotely manage, monitor, and control all the city lighting.

About *Prosumers, connecting people and accelerating the climate transition*, talked **Mihai Toader-Pasti – Cofounder ENERGIA.TA**. The aim of the association is to support prosumers in Romania, in terms of both duration and bureaucracy of the authorization process, and compensation for energy injected into the network. The *Prosumer's Guide* was created for this purpose, offering technical, economic details and useful recommendations for those interested in producing energy by themselves, thus accelerating transition to an economy based on clean energy.

Mihai Toader-Pasti highlighted the history of prosumers and the new perspective in Romania. As the *Energy Performance of Buildings Directive (EPBD)* requires all new buildings from 2021 (public buildings from 2019) to be nearly zero-energy buildings (NZEB), the nearly zero or very low amount of energy required should be covered to a very significant extent from renewable sources, including sources produced on-site or nearby.

The ambitious target, proposed by the association, is that Romania



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becomes 100% supplied with renewable energy sources.

In the context of economic transition to clean energy, *'Improving performance, competitiveness, human potential & assets valuation'*, is of particular importance, believes **Cristian-Nicolae Stoina – Member of the Supervisory Board, HIDROELECTRICA**.

On a market shaken by imbalances on global exchanges and not only, during the pandemic, the companies' development plans have been negatively affected, suffering inevitable changes. Hidroelectrica, the largest electricity producer of Romania, was no exception. However, figures show an increase in company's value, having behind seven years of active work, showed Nicolae Stoina.

The company's ambitious investment program until 2025, which amounts to approx. RON 26bn, provides for several significant objectives, including diversification of the line of business, respectively besides hydropower production, the production of wind power.

Hidroelectrica's plans include investments in onshore and offshore wind farms, photovoltaic parks, biomass-fired power production, hydrogen production by hydrolysis, development of e-mobility networks. The official also mentioned the projects Enescu - the acquisition of CEZ Romania group, and Scorilo - the acquisition of UCMR Resita assets.

A particular focus continues to be the assessment and perfecting of human resource, adopting integrated business systems, helping to make decisions fast etc. It is also considered to increase the value

of assets, many more than 60 years old, through upgrade and retrofitting works.

Digitization is of paramount importance in the energy sector, **Daniel Balaci – Director of the Energy Efficiency and New Technologies Division, TRANSELECTRICA**, also claims. He gave the example of the pilot project of Alba Iulia substation - the first digital station of the transmission and system operator in Romania.

The company has a key role on the national power market, also ensuring electricity exchanges between the countries of Central and Eastern Europe, as member of ENTSO-E (European Network of Transmission System Operators for Electricity).

Transelectrica's investment process is continuous, the company's strategy focusing on new upgrade projects, and for the following period there are plans to build power lines of 400 kV in the west of the country, given the increase in consumption in this area, together with the retrofitting of some substations.

TSOs need continuous investments in new technologies, in upgrading system equipment, in substations and power lines, to ensure clean energy, Daniel Balaci pointed out.

He also mentioned the projects in collaboration with the Polytechnic University of Bucharest and with the Polytechnic University of Timisoara, as well as involvement in various European projects.

Last but not least, **Adrian Borotea – Group Strategy & EU Agenda Director, CEZ ROMANIA**, showed what *Being smart and digital means for CEZ*.

The emphasis has been on Oltenia region, where CEZ started the activity approx. 8 years ago. By 2030, Distributie Oltenia would need to be prepared to operate a transformed network, using different capabilities, new systems, and advanced analytics tools.

Some of the challenges are worth mentioning: Pressure on losses (CPT) and network reliability (SAIDI, SAIFI) & Investment transparency and efficiency; Market liberalization & Customer engagement and information, alternative communication channels; Metering data necessary for energy efficiency; Regulation compliance in a low predictable environment; Ageing organization, limited exposure to digital working environment & limited pool of external skilled workforce.

Thus, Distributie Oltenia's initiatives on new technologies will focus on four main areas to meet 2030 expectations – Smart Grid, Advanced Asset management, Digital processes, and Customer satisfaction.

Meanwhile, the key objectives will include efficient operations by real time control and monitoring of field teams, flexible IT system that allows good response time to business needs, customer programs enabled by high quality analytics, improved network performance indicators, advanced smart grid control and analytics.

Currently, there are 10.000 smart meters installed in Craiova on EU funding, the target being 600k smart meters installed until 2028. GIS Data collection is in progress, estimated to be to be finalized until 2024. Currently, 100/130 stations have been modernized and integrated in SCADA.

We thank all our Partners, Sponsors, Speakers & Attendees for their collective efforts during these challenging times. With the Covid-19 situation, we stand by the industry, as we face uncertain times ahead.

The event benefitted from the support of: Romgaz, Siemens, INCDT Comoti, The Sniffers, Transelectrica, Hidroelectrica, Musat & Asociatii, Dietsmann, FPPG, Lukoil, Conpet.

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Renewable Energy Prospects for Central and South-Eastern Europe Energy Connectivity

Renewable sources could cover more than one-third of energy demand across the Central and South-Eastern Europe energy connectivity (CESEC) area cost effectively by 2030, regional Renewable Energy Roadmap (REmap) analysis shows.

This study from the International Renewable Energy Agency (IRENA) offers a full energy system perspective, examining impacts on energy costs, investment plans, supply security and fossil-fuel consumption, along with, climate, the environment and people's health. CESEC brings European Union (EU) countries together with eight non-EU Energy Community members in a key step towards forming an integrated pan-European energy market.

The COVID 19 crisis underlines the need for renewables to drive economic competitiveness, strengthen energy security, ensure affordability, create new jobs, and improve air quality across Europe. Central and South-East Europe's energy systems could be transformed



through massive uptake of cost-competitive renewable power generation, efficient electrification of heat and transport, and increased investments in

sustainable bioenergy across the regional system, the report shows.

Investment in renewables could give CESEC members:

- Savings on energy costs estimated at EUR 3.4 billion (about USD 4 billion) yearly by 2030;
- Benefits worth up to EUR 35 billion (USD 40 billion) with environmental and health impact factored in;
- Greatly improved security of energy supply;
- A more modern, resilient regional energy system;
- Closer alignment with Paris Agreement climate goals.

All CESEC members possess additional, cost-effective, renewable energy potential beyond their existing plans and projections. This creates a concrete opportunity to redirect investments to start building a renewable-based energy system, the report finds.

IRENA conducted the study in close co-operation with the European Commission. ■



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