

**Hearing of the U.S. Senate Energy and Natural Resources Committee
Impacts of Covid-19 on Energy Industry**

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Written Testimony**

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Chairman Murkowski, Ranking Member Manchin and distinguished Members of the Committee, thank you for the opportunity to appear before you today.

It is a privilege to work at the International Energy Agency (IEA), and I was honored to have been asked to serve as Acting Deputy Executive Director earlier this year. I am very pleased today to share with you all the IEA's latest data and analysis on the impact of the Covid-19 pandemic on energy markets.

A brief overview of the IEA

Since the founding of the IEA almost 45 years ago, the United States has been a crucial pillar for the Agency. US leadership and support has come from across government, including the White House, the Department of State, the Department of Energy and your unparalleled National Labs.

We are also very much honored by the support from this Committee and from the Congress more broadly. Our Executive Director, Dr. Fatih Birol, is very pleased to have had the honor of appearing before this Committee each of the past four years, most recently in March. All of us at the Agency have benefited from Committee Members' insights and interactions. Let me thank Chairman Murkowski and Ranking Member Manchin, in particular.

Since our founding in 1974, we have evolved to become the leading authority on global energy issues, providing data, analysis and advice to governments and industry on all fuels and all technologies. Today, the IEA has 30 Member countries, and since the start of 2016 we have welcomed eight additional IEA Association countries: Brazil, China, India, Indonesia, Morocco, Singapore, South Africa and Thailand. This broader IEA Family reflects the global nature of energy systems, accounting for almost 75% of the world's energy consumption compared with less than 40% in 2015.

Covid-19 impacts on energy markets

I would like to start by presenting a broad outline of what the global energy system looks like today. It is a very different picture from the one Dr. Birol described to you earlier this year when Covid-19 had yet to turn into a global crisis.

It is important to emphasize, of course, that the world is dealing, first and foremost, with a health emergency and an economic shock that together have resulted in tragic losses of life and livelihoods. As the Members of this Committee are no doubt aware, energy is an essential part of any economy – a critical enabler of countless facets of modern life: work,

school, health care, communications, travel, entertainment to name a few. That is why the tremendous social and economic disruptions brought about by the pandemic are having major impacts across the energy world.

Put simply, the Covid-19 pandemic has created the biggest shock to the global energy system since at least World War II, with the drop in energy demand this year set to dwarf that experienced after the 2008 financial crisis. All of our IEA data and analysis on the impact of Covid-19 on energy systems that I will highlight in this testimony – and much more – can be found at the new Covid-19 page on our IEA website.

A historic shock to the energy world

The IEA has estimated that global energy demand will fall 6% in 2020 – the equivalent of losing the entire demand of India, the world's third largest energy consumer. Advanced economies are expected to see the biggest declines, with demand set to fall by 9% in the United States and by 11% in the European Union. These forecasts, of course, remain sensitive to how the pandemic, confinement measures in different countries and global economic trends play out over the rest of the year.

The Covid-19 crisis is affecting all major fuels and technologies, although some are suffering more than others. Let me give you a quick rundown of what we expect this year across key parts of the energy sector globally:

- Oil demand is set to fall by 9%;
- Coal demand is set to fall by 8%;
- Electricity demand is set to fall by 5%;
- Natural gas demand is set to fall by 4%; and
- Renewables are the only energy source that will grow in 2020 (Even though renewable power generation is set to buck the trend and grow this year, the industry is still under pressure. The world is on track to build fewer wind turbines, solar plants and other installations that produce renewable electricity because of the impact of Covid-19, marking the first annual decline in new additions in 20 years.)

As a result of all these trends – mainly the declines in coal and oil use – global energy-related CO2 emissions are set to fall by almost 8% in 2020, reaching their lowest level since 2010. This would be the largest decrease in emissions ever recorded – nearly six times larger than the previous record drop of 400 million tonnes in 2009 resulting from the global financial crisis. This decline, of course, is not a reason to celebrate as it comes on the back of premature deaths and economic trauma around the world.

Energy investment set to plunge

The Covid-19 pandemic has set in motion the largest drop in global energy investment in history, with spending expected to plunge in every major sector – from fossil fuels to renewables and efficiency. This unparalleled decline is staggering in both its scale and swiftness, with serious potential implications for energy security and clean energy transitions.

At the start of 2020, global energy investment was on track for growth of around 2%, which would have been the largest annual rise in six years. But after Covid-19 brought large swathes of the world economy to a standstill, global investment is now expected to fall by 20%, or almost \$400 billion, compared with 2019.

This plunge in investment is troubling for many reasons. It means lost jobs and economic opportunities today, as well as lost energy supply that we might well need tomorrow once the economy recovers. The slowdown in spending on key clean energy technologies also risks undermining much-needed transitions to more resilient and sustainable energy systems. Companies with weakened balance sheets and more uncertain demand outlooks are cutting back on investment while projects are also being hampered by lockdowns and disrupted supply chains. In the longer-term, a post-crisis legacy of higher debt will present lasting risks to investment. This could be particularly detrimental to the outlook in some developing countries, where financing options and the range of investors can be more limited.

Global investment in oil and gas is expected to fall by almost one-third in 2020. The shale industry was already under pressure, and investor confidence and access to capital has now dried up: investment in shale is anticipated to fall by 50% in 2020. For oil markets, if investment stays at 2020 levels then this would reduce the previously expected level of supply in 2025 by over 8 million barrels a day, creating a clear risk of tighter markets if demand starts to move back towards its pre-crisis trajectory.

2019 witnessed a historical peak of new construction starts in liquefied natural gas (LNG), primarily in the United States. The Covid-19 crisis disrupted global gas markets; excess supply and weak demand brought European and Asian prices to a level which challenges the economics of US exports. On the other hand, if we see a rebound of the Chinese economy we expect global gas demand to resume its growth. US LNG continues to play a unique role in enhancing market efficiency and supply security all around the world.

Power sector spending is on course to decrease by 10% in 2020. An expected 9% decline in investment in electricity networks this year compounds a large fall in 2019, and spending on important sources of power system flexibility has also stalled. Investment in natural gas plants is stagnating and spending on battery storage is levelling off. There is also a risk that wholesale market development might lead to a decommissioning of nuclear capacity prematurely.

With weak demand, the same sunshine and wind leads to a sudden increase in the share of variable renewables. Power systems have performed well so far, but many systems critically rely on legacy assets, in which there is insufficient reinvestment. Renewables investment has been more resilient during the crisis than for fossil fuels, although spending on rooftop solar installations by households and businesses has been strongly affected. Final investment decisions in the first quarter of 2020 for new utility-scale wind and solar projects fell back to the levels of three years ago. Social distancing measures, in particular, are affecting rooftop solar installations, as they require personal interaction. This is the largest renewables employment area, so even existing green jobs are at risk.

I would like to underscore that electricity grids have been a vital underpinning of the emergency response to Covid-19 in the United States and all around the world. Grids have also supported essential economic and social activities that have been able to continue under lockdown. These networks have to be resilient and smart to ward against future shocks, and

also to accommodate rising shares of wind and solar power. Today's investment trends are clear warning signs for future electricity security.

Energy efficiency – another central pillar of clean energy transitions – is also suffering. Estimated investment in efficiency and end-use applications is set to fall by an estimated 10-15% as vehicle sales and construction activity weaken and spending on more efficient appliances and equipment is dialed back. Energy efficiency is an especially labor intensive field where well-designed policies could have a very significant impact on job creation. Let me take this opportunity to again thank Chairman Murkowski for being a leading member of our Global Commission for Urgent Action on Energy Efficiency, whose high-level, actionable recommendations will be released later this month.

The United States is also a global leader in CCUS technology. The investment case has become more challenging for many actors in the Covid-19 crisis, but there is still an industrial appetite and a clear strategic need to maintain investment in CCUS.

Conclusion

The IEA looks forward to working with the United States and all our members and partners to help ensure that the transformation of energy systems benefits rather than burdens their citizens and economies. We are also committed to assisting all countries in spreading energy services – with all the advantages they bring for human well-being – to communities around the world that still live without access to energy, most notably in Africa.

In addition to all our ongoing work to track and analyze global energy trends for all fuels and all technologies, let me highlight, in particular, a few key upcoming efforts for which I thought the Committee might be particularly interested:

- To help inform decisions that countries will be making in the context of economic recovery plans that are likely to also shape countries' infrastructure for decades, we will soon be releasing the *World Energy Outlook Special Report on Sustainable Recovery*. This Special Report will provide actionable recommendations on how governments can put energy and sustainability at the heart of stimulus plans to create jobs and build more modern, resilient and clean energy systems.
- Recognising the critical importance of innovation, we will also publish in early July an *Energy Technology Perspectives Special Report on Clean Energy Innovation*, which will quantify the extent to which technologies that are currently at prototype or demonstration stage are the investment opportunity of today to reshape the future.
- Finally, the IEA has made clear that tackling the world's climate challenge and accelerating clean energy transitions calls for a grand coalition encompassing everyone who is genuinely committed to reducing emissions. This coalition needs to span governments, industry, investors and civil society to share innovative ideas and best practices, and inspire one another with greater ambition. To this end, the *IEA Clean Energy Transitions Summit* on 9 July will help governments identify the best approaches for creating jobs, putting emissions into structural decline and increasing energy sector resilience. We are pleased to have already secured the participation of Secretary Brouillette and many other key ministers, CEOs and other energy leaders from around the world for this important Summit.

With its boundless human ingenuity, rich resources and track record of successful innovation and commercialization of new technologies, the United States is extremely well placed to continue to lead the world in the development and deployment of energy technologies that can help ensure a secure, affordable and sustainable supply of energy for decades to come.

Chairman Murkowski, Ranking Member Manchin and distinguished Members of the Committee, thank you again for the opportunity to appear before you today. And thank you for your continued strong partnership and support for the International Energy Agency.