

Strengthening sustainable hydropower to support the Covid-19 recovery

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Summary

The Covid-19 pandemic is having a devastating impact across the world and the International Hydropower Association (IHA) wishes to pay our respects to those that have endured pain and suffering both in terms of bereavement and economic hardship.

Once the worst of the health crisis has passed, it is vitally important that the stimulus packages that follow not only maximise the short-term economic impacts but also accelerate the transition toward cleaner and lower-carbon technologies and infrastructure.

As the world's largest source of renewable electricity with multiple non-power benefits, IHA is building broad coalitions and engaging decision makers to help ensure that sustainable hydropower is an indispensable part of the global response just like it has been during the crisis.

In its recently released 'Global Renewables Outlook', the International Renewable Energy Agency (IRENA) stated that an additional 850 GW of newly installed hydropower capacity is needed by 2050 to help achieve the carbon reduction commitments of the Paris Agreement.¹ This added capacity could generate some 600,000 skilled jobs over the coming decade and represents a tremendous opportunity to both stimulate the economy and deliver long-term benefits to society.

This position paper sets out the immediate impacts of the crisis on the hydropower sector, looks at how developers and operators have responded, and outlines important hydropower-specific recommendations to assist governments and international financial institutions as they develop their economic recovery plans.

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Background

The public health and economic emergency caused by the Covid-19 pandemic is unlike anything seen in modern history. At the time this paper was written, up to 4 billion people around the world were under some form of lockdown, unemployment was surging to record levels and the death toll had passed 330,000. According to the International Monetary Fund, the global economy is expected to shrink by 3 per cent in 2020, a significant downgrade from the 3.3 per cent growth forecasted earlier in the year.² In comparison, the Global Financial Crisis saw a decrease of only 0.1 per cent in 2009.

In response, governments have focused on saving as many lives and livelihoods as possible. In addition to addressing the

health implications of the pandemic, governments have committed trillions of dollars to cushion the immediate impacts on individuals and companies and help stave off the worst of the economic downturn.

The severity will vary, but no country, sector or industry will be left untouched and once the health emergency is under control, policymakers will need to be bold and move quickly with massive stimulus packages to ensure a full recovery. Learning from the past, the levels of spending required will be an historic opportunity to invest in sustainable infrastructure and help set about a structural change of our entire energy system.

Impact of Covid-19 on the hydropower sector

Although the pandemic has not impacted the hydropower sector to the extent witnessed in the oil and gas markets, it has been far from insignificant.

In the short-term, widespread uncertainty, currency volatility and liquidity shortages have put financing and refinancing of many hydropower projects at risk. Greenfield development and critical modernisation projects have also been halted due to social distancing measures and supply chain disruptions. Furthermore, proposed or existing government programmes aimed at supporting the sector have been postponed or cannot be implemented.

While existing hydropower operations have been less affected due to being considered a vital service, aided by the high level of automation found in modern facilities, they have been impacted by significant falls in electricity demand and prices. In some markets both demand and prices have contracted by over 20 per cent and remain extremely volatile with periods of negative pricing being recorded. It must be noted though those projects covered by long-term power purchase agreements have remained largely insulated from the impacts.

It is far too early to know how long and severe the decline in electricity demand will be. Relative normality may not return until a vaccine effectively ends the pandemic. Following the Global Financial Crisis, a decade ago, it took several years for demand to reach the pre-crisis peak in many countries.

All these developments have contributed to falling confidence across the hydropower sector as outlined in IHA's recent survey to members following the outbreak of the crisis. The survey showed more than a 20 per cent drop in confidence by respondents (from 77 per cent in 2018's survey, to 56 per cent) on the question of whether their organisation's hydropower revenues will grow over the next 1-3 years.

However, there is some cause for optimism. As Fatih Birol, Executive Director of the International Energy Agency (IEA) recently stated, the demand drop has "fast forwarded some power systems 10 years into the future" regarding integrating high percentages of variable renewable energy (VRE) which receive priority dispatch.³ With this there has been increasing need to curtail VRE generation - in California in the USA, the UK

and other countries - in periods of declining demand which has generated greater discussion about the need to incentivise long-duration energy storage development such as pumped storage hydropower.⁴

Finally, the impacts of Covid-19 combined with the Russia-Saudi Arabia oil price war of earlier this year has led to a collapse in oil prices with the futures price for West Texas Intermediate, the US oil benchmark, dropping below zero for the first time in history in April. Moreover, oil prices are expected to remain at low levels for some time which has raised concerns about the potential impact on renewables development and investment.

While oil accounts for only a small share of the world's overall power mix, gas prices are indexed to oil prices in many markets and have already experienced considerable declines. The longer-term consequences are far from clear but early evidence suggests the crisis will have a much greater impact on coal. Due to its higher position on the merit order and declining demand, coal consumption has already seen falls of up to 30 per cent from a year ago in Europe, India and other markets. Continued low gas prices could further undercut coal and accelerate the shift from coal to gas in power generation in many countries.

Of course, renewables are not immune to these developments but are somewhat shielded due to the significant cost reductions achieved over the past decade and that investment is often driven by national policies and long-term commitments in many countries, including Nationally Determined Contributions (NDCs) under the Paris Agreement.⁵ As such, ensuring these commitments are maintained and increased over time will be critical. Some countries, particularly developing countries with limited ability to use fiscal policy to stimulate their economies, may also seek to take advantage of low fossil fuel prices as they recover from this crisis. Such short-term choices do come with longer-term risks and international financial institutions (IFIs) must play a role in helping to put developing countries on a sustainable and resilient path to recovery.

The hydropower sector's role in responding to the crisis

Due to successfully implementing business continuity plans, hydropower operators have, in many countries, helped 'keep the lights on' by providing electricity supply for essential health and other services throughout this crisis. While often the forgotten renewable, through these actions, the resilience, reliability and flexibility of hydropower has been better recognised.

The higher shares of VRE in several markets, combined with the need to ensure that there is sufficient capacity during all time periods, has highlighted the operational challenges faced by grid operators in maintaining grid stability. This has underlined the vital role hydropower plays as a source of system flexibility.

Hydropower's flexibility services were best demonstrated in India on 5 April as hydropower played a pivotal part in

successfully managing 31 GW of load variability in a matter of minutes. In perhaps the largest electricity experiment the world has even seen, India's hydropower sector was heralded for restoring electricity to tens of millions of households following the huge plunge in demand.⁶ This came after Prime Minister Narendra Modi called for Indians to switch off their lights for nine minutes to express solidarity amid the Covid-19 pandemic.

In addition to continuing to provide energy and water services to their local communities, inspiring stories have emerged from IHA's members from across the globe. Hydropower generators and manufacturers have been providing reassurance to communities, donating medical supplies and supporting vulnerable people.

Shaping the global response and informing the sector

IHA has been responding to the crisis across multiple fronts:

Outreach to policymakers and building coalitions

- Engagement with IRENA on a [joint call to action on Covid-19](#).
- Engagement with 16 national hydropower and generator associations from around the world to develop a [joint statement](#) setting out guiding principles for energy infrastructure policy in the Covid-19 recovery.
- A short [information video](#) outlining hydropower's response to the crisis and the need to support sustainable projects, which was promoted across IHA's digital channels.
- Engagement with IEA as the organisation formulates its response to the crisis and advises its member governments.
- Presented in multiple webinars, including one hosted by the IRENA Coalition for Action on 7 April which explored the impact of Covid-19 on the renewable energy sector and set out areas of future cooperation.

Keeping the sector informed

- Conducted a rapid survey of members to understand how the pandemic is affecting the hydropower sector, and what measures are needed in response.
- Written to all IHA member CEOs setting out the association's initial response to the crisis and offering our support as it further unfolds.
- Several written [statements](#), [articles](#) and [videocasts](#) on Covid-19 and the hydropower sector which have been promoted across all our social media channels.
- Presented in webinars hosted by NORWEP and HydroReview in which IHA provided a global perspective on impacts of Covid-19 on the sector.
- Regular information bulletins on Covid-19 delivered by email and via our online community, Hydropower Pro, which has a [dedicated page to Covid-19](#).
- Web and social media promotion of our members responding to Covid-19, including efforts to provide relief and medical supplies to local communities.

How sustainable hydropower can best support the recovery

Recent estimates have indicated that global carbon dioxide emissions could fall up to 8 per cent this year, amounting to the largest annual reduction on record.⁷ According to the United Nations, annual reductions of this magnitude are needed every year to 2030 to hold the global temperature rise to below 1.5 degrees Celsius.⁸ The fact that this year's decline will only be possible due to large sections of the world's economy having been shut down or greatly impaired illustrates the scale, scope and urgency of the climate challenge ahead of us and the need for the economic recovery to be coupled with an ambitious decarbonisation agenda. Soon after the Global Financial Crisis – just as after the oil shocks of the 1970s and 1980s and the Asian financial crisis of the late 1990s – emissions sharply rebounded. Only a concerted effort by government policy will avoid a repeat of this. It is a matter of political will and choice.

As the world's single largest source of renewable electricity with unique flexibility services to support the integration of VRE, hydropower will be vital to future energy systems. In addition, the 850 GW of new hydropower capacity required by 2050 to help achieve the Paris Agreement will unlock upward of US\$ 1.7 trillion of investment and some 600,000 skilled jobs over the coming decade.

Furthermore, hydropower delivers vital means of managing freshwater, providing supplies for agriculture, homes and business, and mitigating the impacts of extreme weather events such as floods and drought. These services are needed today more than ever.

As such, IHA and its members stand ready to assist decision-makers across all levels of government and IFIs to help ensure hydropower is part of the stimulus packages devised to support the economic recovery and advance the clean energy transition. The role of governments is particularly important given that they directly or indirectly drive more than 70 per cent of global energy investments according to the IEA.⁹

Accounting for both the short-term need for investments and initiatives that can be deployed relatively quickly to boost the economy and longer-term considerations, IHA calls on governments to:

- Support the development of sustainable hydropower projects as an essential part of the energy transition and wider development strategy to help kick-start the recovery.
- Support sustainable hydropower development through **introducing appropriate financial measures** such as tax incentives, where needed, to ensure that economically viable and shovel-ready projects can commence. Modernisation and refurbishment projects are particularly well placed for this short-term stimulus.

- Where possible and in line with internationally recognised sustainability guidelines, **fast-track planning approvals** to ensure the development and modernisation of hydropower projects can commence as soon as possible.
- Where applicable, **extend concession agreement deadlines as well as construction deadlines** for those projects that have previously benefited from government programmes in order to secure the finance already committed.
- Given the increasing need for long-duration energy storage such as pumped storage, work with regulators and system operators to **develop appropriate compensation mechanisms for hydropower's flexibility services**.
- Provide **support for research and development (R&D) programmes to aid the accelerated deployment of advanced hydropower technologies** including innovative pumped storage solutions.
- Not only maintain but **increase the ambition of renewable energy and climate change targets** which incorporate the role of sustainable hydropower development. This will instil much needed confidence in the sector.

IFIs also have a role to play in maintaining the momentum on renewable investments in developing countries, including in hydropower projects, through offering support in the form of grants, loans, equity investments and other mechanisms in order to restore and enhance viability where needed.

Finally, to help ensure that the hydropower sector is prepared for the Covid-19 recovery, IHA is encouraging operators and developers to:

- Where possible, ensure shovel-ready project plans are in place so they can benefit from government stimulus packages and support the recovery.
- Make sure projects are aligned with international good practices using recognised tools such as the Hydropower Sustainability Tools.
- Demonstrate a system-scale approach through hybrid projects, such as floating PV or pumped storage, alongside solar or wind power to best showcase hydropower's flexibility services and contribution to the clean energy transition.

IHA's plan of action

Over the coming weeks and months, IHA will continue to work with our members and partners and step up engagement to inform decision-makers across governments, international organisations and industry.

Our messages will be amplified across IHA's communications and media channels in the form of further articles, webinars and multimedia content.

Active dialogue among members and national hydropower associations will also be enhanced with increased joint action and online events as well as a platform for presenting smart and innovative solutions for the sector.

In addition, IHA will continue to make progress on several important international initiatives which have the potential to deliver tangible benefits for hydropower and the wider energy sector over the long-term, including:

- IHA is seeking to establish an International Forum for Pumped Hydropower Storage which will be a government-led multi-stakeholder group. The forum would provide practical recommendations on how best to support the development of pumped storage in future power systems.
- IHA is working to establish an intergovernmental hydropower

group within IRENA to set global recommendations around policies that incentivise development, promote sustainable outcomes (i.e. using the Hydropower Sustainability Tools) and help better coordinate energy system planning.

- IHA is working closely with the IEA as they develop their 'Renewables 2020' report which will focus on hydropower, particularly market and policy recommendations to support its operation and development.
- IHA is building links with the renewables and energy storage communities to strengthen collaboration and coordinate joint initiatives.

For more information, please contact iha@hydropower.org or visit www.hydropower.org.

About IHA

The International Hydropower Association (IHA) is a non-profit organisation that works with a vibrant network of members and partners active in more than 120 countries. Our mission is to advance sustainable hydropower by building and sharing knowledge on its role in renewable energy systems, responsible freshwater management and climate change solutions.

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