The private sector plays a key role in hydropower development, both in providing the necessary technical skills but also as a source of financing.

There a number of different financing models and instruments available that involve the private sector. The appropriate structure will vary according to site and country-specific circumstances.

Barriers to investment can often include the lack of a strong regulatory framework and the complexities involved, particularly for large-scale projects.

Over the past ten years, power purchase agreements have proven to be an increasingly popular mechanism. This is especially the case in emerging markets, where they have helped to address power shortages.

Like other models, including public-private partnerships, creating a common understanding between parties is essential in order to best allocate and mitigate risk and achieve a balanced, durable and bankable agreement.

In this session, power producers, government advisers and experts identified the key challenges and opportunities. They also explored how governments and international financial institutions can leverage greater private sector participation.

In addition, panellists discussed the replicability of successful experiences from around the world, and helped lay out what constitutes industry best practice.

Speakers
- Carolyn Blacklock, specialist adviser, PNG Government
- Li Yinsheng, CEO, China Three Gorges (CTG) Brazil, and executive vice president, CTG International
- Gil Maranhão Neto, chief strategy, communications and CSR officer, Engie Brasil
- Mike McWilliams, head of hydropower, Mott MacDonald
- Gabriel Azevedo, head of environment, social and governance, IIC (moderator)
**Key discussion points**

Offering a public sector perspective, Carolyn Blacklock spoke of the challenges faced by developing economies such as Papua New Guinea (PNG) in attracting experienced private sector companies to develop their hydropower resources.

Only 12 to 15 per cent of PNG’s population have access to electricity (the country’s total installed capacity is 580 MW). However, the country’s hydropower potential is in excess of 15,000 MW.

**Some projects can take 30 years to recover the initial investment, making hydropower a unique industry**

Blacklock said the government currently lacks the capacity to attract and deal with private sector players and inadequate governance has deterred investment in key infrastructure projects in the past.

Li Yinsheng outlined the challenges the private sector faces when investing in hydropower projects. In particular, he noted that some projects can take 30 years to recover the initial investment, making hydropower a unique industry in terms of return on investment.

He went on to describe the three most important elements needed for successful projects. Firstly, a quality location characterised by favourable hydrological conditions. Secondly, strong demand with stable economic growth. And thirdly, an enabling regulatory framework (political and policy stability).
Citing Brazil as an example of a country that has successfully utilised its hydropower resources, Gil Maranhão stressed the importance of a well-developed regulatory regime with respect to attracting private sector development.

Over the past two decades, the Brazilian power industry has undergone a dramatic transformation, including the deregulation and the implementation of renewable energy auctions.

While not without their own challenges, the reforms have helped propel the country towards becoming a global leader in renewable energy.

Mike McWilliams briefly covered the various project financing models employed by the hydropower sector. These include Build, Own, Operate (BOT) and Build, Own, Operate, Transfer (BOOT).

The FELT model looks to significantly reduce the front-end risks to the private sector developer

He explained how a model proposed by Mott MacDonald, known as FELT (Finance, Engineer, Lease and Transfer), could better apportion risk and control of a project.

Under the FELT model, a government-owned entity carries out the preparation studies, obtains the relevant licenses and then procures a developer once it is ‘shovel ready’. The developer then constructs the project (‘engineers’) and, upon completion, hands it back in return for defined annual payments over a period of time (‘lease’), at the end of which complete ownership sits with the government entity (‘transfer’).

Similar to the aims of the Hydropower Preparation Support Facility, the FELT model looks to significantly reduce the front-end (preparation phase) risks to the private sector developer.
**Key outcomes**

A key takeaway from the session was that there is no single model, instrument or financing arrangement which works best across the sector. Private hydropower development in many countries is still in a state of evolution, following decades of power market deregulation.

Hydropower financing is very much a site, state and country-specific proposition. Increasingly, we are seeing different models and sources of finance used in conjunction with others in an attempt to best reduce and allocate the risk associated with hydropower development.

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**What next?**

Building on this session’s key outcomes, IHA is undertaking a number of initiatives aimed at increasing private sector participation in the development of sustainable hydropower.

The proposed Hydropower Preparation Support Facility is one such example which is seeking to reduce the high risk associated with complex early-stage project preparation for private developers. Other initiatives include the development of industry accepted criteria which enables developers to access the growing green bond market and a methodology to identify, quantify and communicate the multiple benefits of hydropower to decision makers and other stakeholders.