OUR VISION

The world is facing a water and energy crisis. Around the globe, 1.1 billion people do not have access to clean water, while 1.2 billion live without access to electricity. The dominance of fossil fuels in the global energy supply drives climate change, exacerbating these problems. With the global demand for energy expected to increase by up to 61 per cent by 2050, the world must look towards a sustainable, renewable mix of energy sources.

Hydropower, the world’s largest source of renewable electricity, has an increasingly important role to play as part of a mixed energy portfolio in adapting to climate change.

Development is challenging on many fronts. While the way forward for hydropower must be economically and technically robust, its footprint must be one that respects the environment and improves people’s lives.

Our vision is a world where water and energy services are delivered to all in a sustainable way.
Support for sustainable hydropower across the international community, and recognition of the vital role it can play in addressing energy, water and climate challenges.

The increasing attention on water – and in particular the impacts of energy on water – placed hydropower firmly in the spotlight in 2014. ‘Water and energy’ was the dominant theme of both the United Nations’ World Water Day in Tokyo, and World Water Week in Stockholm.

We have been ever-present in these conversations, as we seek to advance policies and strategies that will strengthen the sector’s performance. For the association it has been a year of partnerships: reinforcing existing ties, and building new ones. From The Nature Conservancy and WWF becoming the first NGOs to sponsor a major hydropower event, to our work with the financial sector to further the assessment of projects in the developing world, it is clear there is a broader consensus on the enormous potential of hydropower to have a positive impact, if done in the right way.

In many ways it has been a landmark year for IHA. After a long period of gathering members’ feedback, we developed and launched a new visual identity and website. This new platform enables us to showcase different perspectives and expertise from our network of members and partners, as well as presenting information from our international hydropower database.

Welcome to the 2015 IHA Activity Report. In these pages we bring together some of our key actions and achievements over the last year, as the hydropower sector continues to take steps forward. We also cast an eye towards our future work programme and the 2015 World Hydropower Congress in Beijing.

We entered 2014 on the back of a significant landmark, as worldwide installed hydropower capacity surpassed 1000 GW. China has been leading the way, bringing another 28.8 GW online in 2013 as the country seeks to achieve 15 per cent renewables by 2020. Building on this, last year saw the completion of the 13,860 GW Xiluodu project on the Jinsha River, the world’s third-largest hydropower plant.

However, the progress we have seen goes beyond the technical achievements of the sector. There is evidence of mounting support for sustainable hydropower across the international community, and recognition of the vital role it can play in addressing energy, water and climate challenges.

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It has also been a record year for association membership. You can discover the new players in the membership directory at the back of this publication.

We are delighted to have seen these efforts recognised. At the time of writing, we have been shortlisted for three Associations Excellence Awards in the categories for best overall international association, best website, and best training initiative, for our Sustainability Partnerships.

We continue to build a platform for knowledge on hydropower. Our long-standing greenhouse gases project in collaboration with UNESCO has entered a new phase; we are on schedule to launch a screening tool in 2015 that will estimate the impact of a reservoir on GHG exchanges in a river basin. We are also expanding our work programme, with new initiatives on sedimentation management and hydropower safety taking shape.

While our work programme is evolving and our look has been refreshed, our mission remains the same: to advance sustainable hydropower. In 2015 we celebrate 20 years of support for the sector, and we look forward to working with you to build on the progress we have made together.

Richard Taylor
(Chief Executive)

Ken Adams
(President)

International Hydropower Association
THE IHA BOARD

IHA is governed by a Board that comprises an international group of experts, bringing together high-level experience and different international perspectives of hydropower.

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Mr. Richard Taylor
Chief Executive, IHA

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Executive Vice President, China Three Gorges Corporation

Mr. Colin Clark
Chief Technical Officer, Bookfield Renewable Energy Group

Mr. Gil Maranhão Neto
Director of Business Development, GDF Suez Energy Brasil/Tractebel Energia S.A.

Dr. Roland Munch
President and CEO, Voith Hydro Holding GmbH & Co. KG

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Vice President (Power Generation and International Affairs), Statkraft AS

Mr. Israel Phiri
Independent Consultant

Mr. Andrew Scanlon
Principal Consultant, Andrew Scanlon and Associates

Mr. Segomozi Scheppers
Senior General Manager, Eskom

Dr. Roland Münch
President and CEO, Voith Hydro Holding GmbH & Co. KG

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Prof. Dr. Dominik Godde
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Mr. Robert Adair
Chairman & Managing Director, Sustainable Energy Services Pty Ltd

Mr. Richard Taylor
Chief Executive, IHA

Mr. Lin Chiu-Lue
Executive Vice President, China Three Gorges Corporation

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ADVANCING POLICIES AND STRATEGIES

We work with leading international organisations in the fields of energy and water to improve policy environments for sustainable development. Partnerships help us to promote the role of hydropower in a world that is increasingly turning to renewable energy options.

During 2014, we extended our partnership networks with governments, banks and other influential groups. We have represented the hydropower sector at high-profile events around the world, including Canada, China, Ethiopia, France, India, Peru, Sweden, USA, and more.

This partnership approach has been an instrumental factor in our being shortlisted for Overall Best International Association at the Associations Excellence Awards 2015.

With more and more wind and solar coming onto the grid, there is a growing opportunity for hydropower to play a complementary role, acting as a battery to back up variable output.

In this area, we have worked with the REN Alliance (a coalition of renewable energy membership associations), the International Renewable Energy Agency (IRENA) and REN21 to develop better understandings on how the technologies can work together.

We have delivered this knowledge back to our members in the form of webinars, event workshops and articles. We are working with these groups on an ongoing basis to ensure that hydropower is treated as a renewable in global policy and in key international publications.

Furthermore, we have built new partnerships with the United Nations University Institute for Integrated Management of Material Fluxes and Resources (UNU-Flores) and the Centre for Environmental Design of Renewable Energy (CEDREN). Together with these partners, we convened a seminar at the 2014 World Water Week on water storage for the better integration of renewables, and continued the collaboration to produce a policy briefing on the subject.

The relationship between water and energy has a growing significance for the hydropower sector. Our focus in this area is to build and share knowledge on how hydropower facilities use and consume water, to ensure that related decisions are informed by a sound evidence base.

In this regard, we have continued our work with the World Water Council (WWC), World Energy Council (WEC) and EDF on the Evaluation Framework for Energy Impacts on Water, which aims to define and assess the impact of energy production on water. The project has now identified locations where hydropower test cases will be carried out using a framework methodology.

We also participated in the International Water–Energy Conference in Lyon in October 2014 as part of our commitment to the WWC/EDF led Multipurpose Water uses of Hydropower Reservoirs initiative.

To find out more about any aspect of our work on advancing policies and strategies, please get in touch on: hd@hydropower.org

A strong voice

In addition to our collaborative work, we have played a responsive role in tackling challenges to sustainable development.

In March 2014, a study by the Said Business School (UK) questioned the economic viability of hydropower, citing project cost and time over-runs. We responded rapidly to this development in order to build a broader, more balanced understanding of the multi-faceted economic case for hydropower.

With the support of our community of members, we issued a response within 24 hours of the study’s publication calling for a more principled approach in consideration of the multiple benefits that hydropower can provide, particularly to developing economies. We were quoted in many articles on the issue including the Financial Times and Reuters.

We also issued a swift response to an unwelcome development in the US Appropriations Bill which called for US representatives in development banks to block support for hydropower projects in developing countries. Our science and policy committee came together to issue a policy brief to all IHA members to outline the potential effects.
We are working in collaboration with the World Water Council on several initiatives relating to water and energy, including the council’s Water for Energy Framework (W4EF), the ‘Multipurpose Water Uses of Hydropower Reservoirs’ initiative, and a session on the topic at the 2015 World Hydropower Congress. The council’s president, Ben Braga, explains the value of this partnership.

“The nexus between water and energy is a high priority for the World Water Council. Water is a source of energy production that is renewable, clean and sustainable, and is an important way of minimising impacts of energy production on climate change.

If the forecasts of scientists from the Intergovernmental Panel on Climate Change (IPCC) are correct, we can expect longer droughts, intense rainfall and more flooding. Reservoirs can help humanity to become more resilient to this situation. We can store water from flooding, and release it later on when the longer droughts occur.

Our work with IHA makes a lot of sense. With IHA being the leading organisation on hydropower issues, it fits perfectly into our strategy because it enables us to bring an integral perspective from the sector to the conversation on using water to produce energy.

For example, we had a very important gathering in Lyon recently where IHA contributed greatly to the discussions on the multiple uses of water in a river basin. Also, as a member of the World Water Council, IHA has been instrumental in producing an excellent report which will be published at the 7th World Water Forum in Korea.

At the World Hydropower Congress in Beijing, we hope to bring the perspective that hydropower needs to play a role in the multiple uses of water in a river basin. We need to discuss hydropower at the correct technical level, and this involves thinking about hydropower together with storage, and not just small and run-of-river. We look forward to continuing our collaboration with IHA on this important work.”
ADVANCING POLICIES AND STRATEGIES CONTINUED

EXPLORING THE ROLE OF STORAGE

In 2014, we formed a new partnership with the United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES). At World Water Week in Stockholm, we co-convened a seminar on water for energy storage, along with the Centre for the Environmental Design of Renewable Energy (CEDREN). Reza Ardakanian, a director at the UNU-FLORES institute, writes about the next steps for the collaboration.

“UNU-FLORES is committed to advancing a nexus approach to the sustainable management of water, soil and waste. One area, where the development and implementation of a nexus approach to sustainable resources management can be exemplified, is the water-energy nexus. This certainly involves sustainable use of hydropower and its development within renewable energy systems.

For this reason, UNU-FLORES considers IHA as a key partner and was very keen to initiate co-operation. The joint organisation of a seminar at the World Water Week in 2014 represented a very successful starting point and will result in a joint publication.

We are glad that IHA is involved as main convener of a session at the Dresden Nexus Conference in March 2015 (DNC2015) and are looking forward to contributing to the upcoming 2015 World Hydropower Congress. In line with the co-operation agreement which was signed earlier in 2014 we will actively engage in expanding the co-operation to further activities and projects in 2015 and beyond.”

UNU-FLORES advances a nexus approach to the sustainable management of environmental resources through academic research, teaching and capacity development.

Find out more at https://flores.unu.edu

Reza Ardakanian
Director
UNU-FLORES Institute

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Activity Report 2015

Who We Are
Our Impacts
The Future
Membership Directory

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With members and partners active in over 100 countries, we connect many different layers of expertise in our networks. In 2014 we visited and held membership briefing or training events in Argentina, Brazil, China, India, Italy, Mexico, Paraguay, Peru, Russia, Sweden, Zambia and more.

A key component of our outreach work has been widening participation in the Hydropower Sustainability Assessment Protocol, a tool that measures the sustainability of projects across a comprehensive range of social, environmental, economic and technical considerations (see page 34 also).

As the protocol’s managing body, we initiated a ‘sustainability partnerships’ scheme in 2011 to promote its uptake and development worldwide. Through these partnerships, we work with our members to build capacity and understanding on how the protocol can be used in a range of contexts. Following significant progress in the last year, the scheme has been shortlisted for ‘Best Training Initiative’ at the Associations Excellence Awards 2015.

The partnerships cover a wide geography (Austria, Brazil, China, Columbia, Croatia, Ghana, Iceland, India, Malaysia, Nepal, Sweden, Vietnam), projects of many sizes (from 3 MW to 3,750 MW), and a range of project stages, from early conceptual stages to projects which have been operating for many years.

In 2014, our focus has been on engaging with supporters outside of the industry to widen the implementation of the protocol, through sustainability partnerships. We have built significant momentum: for example, we are now working with a Swiss government agency, SECO, to initiate the first training and assessment in Africa, and with the World Bank in Vietnam. We have also partnered with the World Wide Fund for Nature (WWF) to host a workshop in Zambia, and co-convene a seminar on hydropower sustainability at World Water Week in Sweden.

In total, we have now delivered 17 project assessments (covering a combined 12 GW) and 31 training events, helping 441 attendees.

“We see incredible power in multi-stakeholder processes. We think that by the means of the Hydropower Sustainability Assessment Protocol and the negotiation process around creating it, a lot of understanding and learning has been achieved on all sides.”

Jian-Hua Meng, water resources specialist, World Wide Fund for Nature (WWF)

Building towards Beijing

In 2015, our flagship event, the World Hydropower Congress, will be held in Beijing on 19–21 May. The preparations for the event have given us an excellent opportunity to build new collaborations with a range of organisations involved in the hydropower community.

To bring regional perspectives to the table, we are working alongside the African Union and the Asian Development Bank (ADB). We are also working with UNESCO’s International Hydrological Programme, the World Bank, the International Institute for Environment and Development (IIED) and many others to build knowledge on a range of topics and prepare the programme ahead of the event.
IHA members Hydro-Québec (Canada) and Sarawak Energy Berhad (Malaysia) have developed a co-operative relationship over recent years, rooted in their participation in IHA’s World Hydropower Congress. In 2014, the two companies solidified this relationship by agreeing a memorandum of understanding. Dr Chen Shiun, general manager of research and development at Sarawak Energy, and Yvan Cliche, manager of institutional affairs, Hydro-Québec, explain more about the development.

“Sarawak Energy Berhad and Hydro-Québec have entered into a three-year agreement to start a co-operation on hydropower generation projects. Under the agreement, Sarawak and Hydro-Québec will collaborate and conduct technical exchanges on greenhouse gas research profiles of reservoirs; environmental follow-up efforts and studies in aquatic and terrestrial biodiversity, geomorphology and water quality; and environmental management systems for hydropower facilities. This co-operation came about when we were connected through IHA’s congress in Brazil in 2011, and then again at the congress in Malaysia in 2013. We have also both been closely involved in IHA’s work programme on the research of greenhouse gas emissions from reservoirs. As our connection and information exchange has grown, we felt it made sense to come together and define some areas of co-operation. Sarawak Energy Berhad generates, transmits and distributes electricity to more than half a million customers in the state of Sarawak, Malaysia, and is planning to develop its large hydro potentials for the economic and social development of the state. Hydro-Québec generates, transmits and distributes electricity, mainly in the province of Québec, Canada, and uses mainly renewable generating options, in particular storage hydropower. From this agreement, Sarawak looks forward to opportunities to learn from Hydro-Québec’s experiences in managing environmental issues when developing and operating large hydropower. For Hydro-Québec, this agreement consolidates an informal, however close and productive co-operation undertaken with Sarawak, and the company looks forward to extend this collaboration to other fields of activities in hydropower management.”

You can watch an interview with Dr Chen Shiun, in which he discusses the MoU between Sarawak Energy and Hydro-Québec, at: hydropower.org/blog
The Nature Conservancy, a non-government organisation that works to protect ecologically important lands and waters, is a main sponsor of the 2015 World Hydropower Congress. While the Conservancy has participated in the event in previous years as a partner, this new role involves a much bigger commitment to the event. Dr Jeff Opperman, the Conservancy’s director of sustainable hydropower strategy, explains the motivation for this increased collaboration with IHA.

“This coming May, The Nature Conservancy will serve as a main sponsor of IHA’s 2015 World Hydropower Congress in Beijing, along with major hydropower companies such as China Three Gorges Corporation and EDF.

As global population climbs toward nine billion people, including billions thankfully rising towards higher standards of living, we need solutions that work for a world that expects reliable energy, particularly from low-carbon sources. We want to do our part to help create this future world, one where people can live, learn and thrive supported by a sustainable energy system and one that harbours beautiful and productive rivers, including ‘wild’ ones.

The strongest contribution we can make as an organisation to achieve that vision is to build on our history of partnerships and find science-based, common-ground solutions for sustainable hydropower.

The key to our success in freshwater conservation has always been our ability to form diverse partnerships. Working with the US Army Corps of Engineers, Mexico’s Federal Commission for Electricity and China Three Gorges, we have learned the realities of dam planning and management. We work alongside these organisations to provide strategic guidance on hydropower planning, downstream flows, and other solutions to protect and restore rivers. For example, we joined IHA, along with WWF and other NGOs, governments, financiers and the hydropower industry to develop the Hydropower Sustainability Assessment Protocol.

We look forward to contributing to planning the congress and, in May, engaging in a spirited and constructive discussion about how to achieve a vision for our world where sustainable energy and healthy rivers coexist.”

This is an extract of an article by Dr Jeff Opperman on The Nature Conservancy’s decision to sponsor the World Hydropower Congress. You can read the article in full at hydropower.org/blog
CREATING A PLATFORM FOR KNOWLEDGE

In 2014, we strengthened our communications activities by launching a new website, providing a one-stop hub of information on hydropower. Alongside this development, we also unveiled a new visual identity, reflecting the forward-thinking spirit of the association.

The website and new identity are the result of many months of research and consultation with our members and partners, analysis of past performance, and creative development. One key finding of our research was that members wanted a greater wealth of up-to-date information on trends and current best practice in hydropower development.

In response to this, the new website has been built to cater for a regular flow of rich content in a variety of formats, including maps, videos, interviews, articles, country profiles, events and more. Its success has seen it shortlisted for Best Association Website at the Associations Excellence Awards 2015.

In the last year we have also delivered the publication of information collated in our hydropower database, which holds data on over 10,000 of the world’s hydropower stations, and is the product of three years of collaboration with regulators, ministries, associations, stations owners and operators. This data has powered a series of interactive maps on our website, showing the world’s installed hydropower capacity as well as generation density by population and area.

This new breadth of content has seen our website surge in popularity. Since its launch, the number of visits and page views has increased by 140 and 217 per cent respectively in comparison with the same period in 2013, with page views exceeding 20,000 in October 2014 for the first time.

In 2014, our ongoing work in this area moved into a new phase. On 1–5 December at our offices in London, we hosted back-to-back expert workshops to address both the next phase of development of the GHG Reservoir Screening Tool (convened by IHA), and modelling guidelines (convened by IEA-Hydro).

We are working towards launching a prototype of a revised GHG screening tool at the World Hydropower Congress in Beijing, 19–21 May 2015, which will allow users to estimate the impact of a reservoir on the GHG exchanges that occur in a river basin without the need for extensive and detailed site studies.

“Thank you very much for this new development. It looks very good, includes a lot of useful information and is easy to navigate.”

Peter Rae, honorary chair, REN Alliance.

Greenhouse gas (GHG) research
We have been working since 2006 with UNESCO and a wide scientific reference group to develop a common understanding on hydropower’s greenhouse gas footprint and role in mitigation.

Hydropower decision-makers are judged on their ability to future-proof projects. A commitment to build and share understanding of hydropower’s relationship with climate change is central both to our strategy and to the future of the industry.

In 2014, our ongoing work in this area moved into a new phase. On 1–5 December at our offices in London, we hosted back-to-back expert workshops to address both the next phase of development of the GHG Reservoir Screening Tool (convened by IHA), and modelling guidelines (convened by IEA-Hydro).

We are working towards launching a prototype of a revised GHG screening tool at the World Hydropower Congress in Beijing, 19–21 May 2015, which will allow users to estimate the impact of a reservoir on the GHG exchanges that occur in a river basin without the need for extensive and detailed site studies.
We are continuing the development of a screening tool that will assess the likely GHG emissions from reservoirs. Atle Harby, director of the Centre for Environmental Design of Renewable Energy (CEDREN), has been closely involved in this work. He talks about the project’s recent progress, and CEDREN’s other work with IHA.

“We all know that global warming is creating a big challenge for humanity, and we have to try to stop it where greenhouses gases are the main human source. Hydropower can contribute to that as renewable energy, but there has been a debate about reservoirs, which might trap some carbon and release greenhouse gases.

We have seen a couple of cases where we actually think a hydropower reservoir is acting as a greenhouse gas sink, and if we can elaborate more on that and find out the best way of building hydropower then it could really contribute by introducing renewables without creating more emissions.

At the workshop hosted by IHA, we focused on developing a tool that can show us a simple way to predict whether a proposed reservoir is going to emit greenhouse gases or act as a sink.

As a research organisation, CEDREN strongly needs to interact with the industry that is going to use our results – hydropower. We are trying to find win–win solutions, better ways to make hydropower sustainable, and to find the best way to manage reservoirs.

So it has been very valuable to work with IHA and its members, to learn about their needs and to see their positivity towards this.

At the World Hydropower Congress in 2015, I am looking forward to contributing on the greenhouse gases issue. We will hopefully have a first version of the screening tool to show how it can be used, and also perhaps show some good results.”

This guest article is an extract of an interview with Atle Harby, which you can watch at: hydropower.org/blog

To find out more about CEDREN visit: cedren.no

Tormod Schei, vice president, head of climate science, Statkraft
DELIVERING VALUE FOR MEMBERS

By joining IHA you become part of an extensive international hydropower network. As a member, you enjoy better access to information, new connections and strong representation on issues affecting you.

Shape your future
Hydropower, as the world’s leading renewable energy source, has a vital role to play in addressing a global water and energy crisis – but development is challenging on many fronts. We provide a strong, credible voice for the sector and for the role of hydropower in the future at national, regional and international forums. As a member, you can directly shape our strategy and activities through our working groups and regional events.

Get connected
In a world where expertise and funding come from a global space, finding the right connections can make the difference between success and failure. Being a member of IHA gives you access to our extensive global networks and opportunities for strategic relations with key organisations. Our World Hydropower Congress and various regional events provide an ideal platform to build new partnerships.

Raise your profile
Hydropower businesses are competing across borders and continents for business. IHA membership extends your visibility to an international audience of developers, operators, governments, financiers, civil society groups and academia. By joining, you can demonstrate your ambition and unlock new markets.

Access discounts
At a time when managing business finances is ever more challenging, knowledge-building initiatives such as training, conferences and resources are difficult to fit into squeezed budgets. We provide our members with priority treatment on a range of events and tools, including discounted registration for our events and training programmes, and privileged access to key publications.

Stay informed
The landscape for hydropower development is constantly changing, and in today’s communicative world it is crucial to know what is happening around the sector. We provide up-to-date information about policy developments, good practice, new trends and the latest expert insight. Our communications are informed by our unique hydropower database, which monitors hydropower deployment throughout the world.

Board elections
In 2015 we will come to the end of our current governance cycle, and will elect a new Board to direct and oversee our 2015–17 work programme. Candidate nominations will be open between 13 February and 24 April, with candidates then being presented at the IHA General Meeting in Beijing on 19 May.

The Board consists of 18 elected members with representatives of all six regions – North and Central America, South America, Europe, Africa, West and Central Asia, and East Asia and Pacific.

Voting will take place between 29 May and 24 July by electronic ballot, with the election results announced at the end of July. If you would like to find out more about the IHA Board elections, please visit www.hydropower.org/elections.
Jindal Power Limited, one of India’s leading power generation companies with hydropower projects totalling about 5,600 MW, joined IHA in 2013. The company has been an active member, becoming the first IHA sustainability partner in India. Souvik Khamrui, assistant general manager for hydropower at Jindal Power, explains why the company joined, and how the relationship with IHA has been valuable.

“First of all, we were very keen to understand what is happening at the global level in hydropower, so that we can learn from challenges that have been addressed elsewhere and make sure we are implementing the best international practices in sustainable development. We think that IHA is the best platform that brings together representatives of the many different disciplines within hydropower around the world – manufacturers, developers, operators and so on – and this gives us exposure at the international level.

Hydropower projects in India can be very complex to develop. There are regulatory challenges as well as the environmental, social, technical and economic issues which need to be addressed. There are also many stakeholders we need to work with, and we need to allay the concerns of NGOs and the communities that are local to the projects to build consensus.

By engaging with IHA as a sustainability partner, we have a way to look at each of these areas in detail, to understand the risks, to identify gaps in our practices and to find ways to mitigate them as far as possible.

As part of this partnership, we are implementing the Hydropower Sustainability Assessment Protocol on the Etalin project, which at 3,097 MW will be India’s largest hydropower plant when complete. By committing to this process, we hope to take a lead in highlighting the value of a sustainable approach to hydropower development in the country.”
HOW WE DEPLOY OUR RESOURCES

Membership fees complement project-specific and event-related funding to help us advance our mission. We deliver value through our sustainability and hydropower development work programmes, and member-focused activities. We also work to increase our reach outside of our membership and communicate to key stakeholders throughout the world.

Communications and outreach, accounting for £289,000, covers the development and deployment of our website, emails, social media channels and print publications, as well as the co-ordination of the World Hydropower Congress.

Membership and operations, which accounted for £453,000 of our resourcing, covers our connection with the hydropower community, international meetings, and the deployment of our internal operations.

Hydropower development, accounting for £227,000, covers a range of project work on topics such as climate change, regional development, risk and finance, renewable systems, the water–energy nexus, sedimentation and safety.

Sustainability, accounting for £713,000, broadly covers our work in advancing the Hydropower Sustainability Assessment Protocol, in particular the development of partnerships, training and other capacity-building.

You can find out more, including details of the different levels of membership, at membership@hydropower.org

All figures are in GBP 1,000
This section gives an overview of the areas on which we will focus to build and share knowledge in the next phase of our work programme. You can find out more about our work at www.hydropower.org.

As part of our preparation for the 2015 World Hydropower Congress, we surveyed members to obtain a clear picture of the most salient questions facing the hydropower sector in the future. The results have helped us to shape our work programme around the most relevant and important topics.

Our outputs in 2015 will comprise a range of topics on which we will further our partnership work, build synergies between stakeholders and seek to create the right conditions for progress.

IN THIS SECTION:
- Climate change
- Connectivity for aquatic species
- Downstream flows
- Finance and economics
- Resettlement
- Renewables integration
- Safety
- Sediment management
- Water and energy
- In focus: assessing sustainability performance
- In focus: data
- In focus: greenhouse gases – the next steps
Climate change
In addition to our flagship work on developing a common understanding on greenhouse gas emissions from reservoirs (see page 23–24), we are working with the World Bank and others to build awareness and bring stakeholders together on the climate-proofing of hydropower projects. This work will converge with a session at the 2015 World Hydropower Congress on Climate Resilience: How can it be demonstrated? The session will help to define our ongoing work in this area.

Prior to the event, we will publish articles on this topic presenting different perspectives at www.hydropower.org/blog.

In March 2015 we are participating in the Dresden Nexus Conference, hosted by the United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES). We are convening a session at the conference on Hydropower and climate change: Mitigating climate change and resilience in the face of uncertainty.

Connectivity for aquatic species
The need to improve ecological connectivity in rivers for aquatic species is well recognised, but there is debate on how it can be best achieved in practice.

Working together with the World Wide Fund for Nature (WWF), we are organising an expert discussion panel on the topic, which will take place at the 2015 World Hydropower Congress in Beijing.

A number of case studies to highlight successful attempts to improve ecological connectivity will be produced ahead of the session and published following the event.

Downstream flows
The management of downstream flows from hydropower sites is an essential consideration in the sustainable development of projects, but there is often disagreement over the magnitude and timing of flows required.

We are working with UNESCO’s Institute for Water Education to address key questions that often arise within this topic, such as: where are the win–win opportunities? What innovations are power companies exploring to enable improved downstream releases with minimal impact to overall power supply? Under which circumstances are more or less downstream flows acceptable?

A session on downstream flows will bring this work together at the 2015 World Hydropower Congress, which will include insights from industry, environmental groups and academia.

Finance and economics
Understanding hydropower’s role in economic systems and identifying solutions for project finance is a key concern of our members. We are serving on the advisory board for a study on the macroeconomic benefits of hydropower in Europe, which is led by Statkraft and Verbund, and brings together 20 organisations involved in hydropower development in the continent.

The study will look in detail at a power market model projection for 2030, analysis of the direct and indirect effects of hydropower, and multipurpose benefits such as flood control, water supply, tourism and navigation. The results of the study are expected to be released in 2015, which will inform the next steps of our work in this area.

You can stay informed at www.hydropower.org.

The rise of green bonds may present opportunities for hydropower development. After being launched in 2008, the initiative was worth around US$40 billion at the end of 2014, and there is room for further growth. Some of this money is intended to support hydropower development, but may depend on future criteria of what ‘green’ means.

In 2015 we will publish a policy briefing on the initiative.

We are working with the International Finance Corporation (IFC) and other international financial institutions to convene sessions at the 2015 World Hydropower Congress on financial structuring options for new development, and future investors and owners. The outcomes and case studies will be made available in a variety of formats following the event in May.
Resettlement
Population displacement is a highly sensitive issue in certain new hydropower developments, and it needs to be a guiding consideration in the planning, siting, assessment, design and management of any scheme.

A working group comprising representatives of IHA member companies around the world has been exploring the concept and practicalities of ‘consent’ of project-affected people, including the principle of Free Prior Informed Consent (FPIC). The group will report its work in 2015, which will then be considered by the governing body of the Hydropower Sustainability Assessment Protocol on how its findings may be incorporated.

We will partner with Hohai University to host a session on resettlement boundaries and responsibilities at the 2015 World Hydropower Congress, which will bring a range of experiences to the table – this material will be made available through case studies and articles following the event.

Renewables integration
As more and more variable output technologies come onto the grid, particularly wind and solar, hydropower has an increasingly important role to play in providing a reliable back-up to manage peaks and troughs in demand.

Indeed, in the International Renewable Energy Agency (IRENA) REmap vision for 2030, pure and pumped hydropower capacity will rise to 1,925 GW, wind 1,634 GW and solar 1,250 GW. The International Renewable Energy Alliance (IRENA) REmap is a coalition of associations representing renewable energy sources, including hydropower, wind, solar, geothermal and biomass. In 2015, we will take the lead in co-ordinating REmap Alliance activities, a responsibility that rotates annually. Through this initiative, we will be collecting and distributing case studies on renewables working together.

We will continue to work closely with IRENA and the RE map Alliance, as well as the Renewable Energy Policy Network for the 21st Century (REN21), to promote renewable energy systems and improve knowledge on how the technologies can work together. This will be the focus of a session at the 2015 World Hydropower Congress.

Furthermore, in early 2015 we will jointly publish a new policy briefing with the United Nations University Institute for Integrated Management of Material Fluxes and Resources (UNU-Flores) and the Centre for Environmental Design of Renewable Energy (CEDREN), following our collaboration on a seminar at the 2014 World Water Week.

Safety
As is the case with any major infrastructure project, there are potential safety risks associated with hydropower activities that need to be considered at every stage of development and operation. As technology in the sector rapidly advances, it is crucial to maintain and improve high safety standards and to continue learning from the many examples of good practice that exist around the world.

The working group, together with Tsinghua University, is championing a session at the 2015 World Hydropower Congress that will explore sediment management and mitigation options.

Water and energy
The water and energy sectors are increasingly interdependent and important to each other. We are working to increase understanding of the ‘water–energy nexus’ through involvement in a number of initiatives and events.

In 2015, we will participate in the 7th World Water Forum, hosted by the World Water Council (WWC). We also continue to work with WWC and other partners on initiatives such as the Evaluation Framework for Energy Impacts on Water (WEAEP) and Multipurpose Water Uses of Hydropower Reservoirs.

We will also participate in an IEA Hydro initiative to value the energy and water management services provided by multipurpose hydropower projects. We are seeking members to volunteer for case studies trialling the methodology for the W4EF initiative, which is led by EDF. You can find out more about this work and how you can get involved at www.hydropower.org/water-and-energy.

We are currently working with our members to scope hydropower-specific safety issues that need to be addressed. This process is focused around a set of key questions, including: How is hydropower safety defined? How is hydropower safety addressed by national and international regulations? How can hydropower safety be effectively monitored? What can we learn from examples of failure? And, what are examples of good approaches to hydropower safety?

As a result of this consultation, we will establish a working group in 2015 that will explore these issues related to the operational safety of hydropower projects. If you would like to find out more about this work or how you can get involved, please get in touch at hyd@hydropower.org.

Sediment management
Reservoirs can cause changes to sediment transport in river systems, creating an accumulation of sediment in the reservoir and reducing the discharge downstream. Effects include increased erosion downstream and a reduction in deposition both inland and in coastal deltas.

Finding solutions to the accumulation of sediment and nutrient caused by reservoirs is important for the health of the ecosystems that the river supports. Sediment management is also needed to reduce the loss of reservoir storage capacity, and the impact of sediment abrasion on gateworks, turbine equipment and other components.

In 2014, we created a working group to identify and share good practice on sediment management in a variety of geographies and conditions.

The working group, together with Tsinghua University, is championing a session at the 2015 World Hydropower Congress.
**IN FOCUS: ASSESSING SUSTAINABILITY PERFORMANCE**

The Hydropower Sustainability Assessment Protocol is a tool for assessing projects across a range of social, environmental, technical and economic topics. Project assessment provides a sustainability profile, which can be used to identify gaps and drive continuous improvement.

As the protocol’s managing body, our priority in 2015 is to continue its wide implementation around the world, and build further support from key stakeholders outside of the industry.

In 2014, we concluded a four year partnership with the Norwegian Agency for Development Cooperation (Norad). We also entered a partnership with the Swiss Secretariat for Economic Affairs (SECO), which is providing funding for the first project assessment in Africa, as well as training, capacity-building and strengthened governance.

Next year, the Norad project will focus on identifying new sustainability partners to work with on implementing the protocol in Africa and SE Asia, while the SECO funding will support assessments of a number of potential sites in Ghana.

The protocol’s early stage tool, the key focus of the work, enables evaluation of potential sites from a sustainability perspective, identifying broader environmental and social issues along with the more common technical and economic parameters to guide decision making.

Our sustainability partnerships scheme will continue to play an important role in furthering the worldwide implementation of the protocol. Through this scheme, we partner with leading hydropower companies and other key players to build capacity and deliver assessments on the ground.

We are now working with the first sustainability partner in India (Jindal Power) to apply the protocol on a new hydropower project that will be the country’s largest, and also with the first Chinese sustainability partner (China Three Gorges Corporation) to assess a project in Laos.

Another key priority will be to expand support among the financial community to use the protocol to assess projects. In August 2014, the World Bank published a review of the protocol, providing recommendations on its usage, which described it as “a useful tool for guiding the development of sustainable hydropower in developing countries”. We will continue to work closely with the World Bank, the International Finance Corporation (IFC) and the African Development Bank (AfDB) among others to demonstrate the value of using the protocol to improve sustainability performance.

This map (right) shows the progress of our sustainability partnerships scheme, highlighting where training and assessments have taken place internationally.
We work to continually advance knowledge through our database of the world’s hydropower companies and stations. This project reached a new maturity in 2014, as we began to deliver information from the database to our members through a series of interactive maps.

The hydropower database holds data for over 10,000 individual hydropower stations, representing 89 per cent of global capacity, as well as company and national data. It is the result of a truly collaborative effort with regulators, ministries and electricity associations, as well as the world’s station owners and operators, and can now serve as a valuable resource for the industry.

Our aim is to be responsive to members’ needs when delivering outputs from the database. For example, in October 2014 we published a map showing world hydropower generation density by area. Following its publication we responded to member requests for a generation density map by population, which we published a month later.

The key vehicle for data reporting in the next year will be the 2015 IHA Hydropower Report, which will be published in April. We are collating a variety of metrics to feature, such as the top countries by installed capacity and increased capacity, investment in new capacity, largest 20 companies by installed capacity, scenarios for 2035 and 2050, and more.

We will also continue to use our website at www.hydropower.org to disseminate information from the database in the form of maps, articles and briefings. We are building a ‘members zone’ – a password-protected area for IHA members – which will feature exclusive content, due for launch in early 2015.

IN FOCUS: DATA

While hydropower is a very low-carbon technology, it is known that some reservoirs in certain conditions can release quantities of methane, a greenhouse gas. Reservoirs can also, in other circumstances, act as carbon sinks.

The processes and conditions are highly complex and require thorough investigation so that the development and the operating regimes of the reservoirs can be optimised to improve the water quality and mitigate emissions.

Much work has been undertaken to measure emissions and the conditions under which they occur, but this work is usually site-specific, complex and not appropriate for widespread use in the great majority of reservoirs where this is not an issue.

Since 2006, we have been working with UNESCO and a wide scientific group in and around the industry to develop common understanding and metrics for the issue. This work resulted in the publication of the UNESCO/IHA GHG Measurement Guidelines for Freshwater Reservoirs.

We are continuing the development of a screening tool that will allow the rapid and low-cost assessment of likely GHG emissions from reservoirs, allowing developers and operators to assess whether the reservoir is likely to generate emissions, and therefore require further and more detailed examination and modelling.

The tool is intended to inform decision-makers if there is likely to be any significant GHG footprint associated with the purposes for which the reservoir is being developed. The tool will be applicable for both existing and planned reservoirs. If the tool identifies a reservoir that is likely to cause a significant impact, the recommended action will include the possibility of detailed modelling.

Our work is aligned with that of the International Energy Agency’s Hydropower Agreement (IEA-Hydro), which is currently working on the development of modelling guidelines. These guidelines will relate to the detailed study of the GHG status of reservoirs shown to be vulnerable by the GHG Reservoir Screening Tool.

IN FOCUS: GREENHOUSE GASES – THE NEXT STEPS
We are currently making arrangements for possible secondments of staff from member organisations during 2015. If you would like further information about staff secondments, please get in touch with the central office iha@hydropower.org.*
China Three Gorges Corporation (CTG) is a large state-owned enterprise with the mission of building the Yangtze River.

China Power Investment Corporation (CPI) is one of the five state-owned generating companies in China, and a comprehensive energy group integrating industries of power, coal, aluminium, railway and port. In 2013, CPI produced 367.81 TWh of electricity, 68.34 million tons of coal, 2.73 million tons of aluminium, 1.18 million tons of steel, and 2.71 million tons of bauxite. Its railway mileage reached 505 km with an accumulative coal transportation of 40.15 million tons. CPI’s total revenue amounted to USD14.1 billion, profits USD1,841.87 million and EVA USD1,336.35 million, all hitting historic highs.

China Power Investment Corporation – CPI is one of the five state-owned generating companies in China, and a comprehensive energy group integrating industries of power, coal, aluminium, railway and port. Possessing assets in hydropower, thermal power, nuclear power and new energies, it is one of the three companies in China that can develop, build and operate nuclear power plants. Founded on 29 December 2002 with a registered capital of RMB 12 billion, CPI carefully practices the Scientific Outlook on Development, and firmly implements the Three-step Strategy.

By the end of 2013, CPI achieved a total installed capacity of 86,678 MW, coal production capacity of 74.1 million tons, aluminium smelting capacity of 2.89 million tons, alumina refinery capacity of 2.6 million tons, and bauxite production capacity of 12 million tons. Its total assets reached USD101.9 billion.

In 2013, CPI produced 367,817 TWh of electricity, 68.34 million tons of coal, 2.73 million tons of aluminium, 2.71 million tons of alumina and 2.13 million tons of bauxite. Its railway mileage reached 505 km with an accumulative coal transportation of 40.15 million tons. And CPI’s total revenue amounted to USD14.1 billion, profits USD1,841.87 million and EVA USD1,336.35 million, all hitting historic highs.

China Three Gorges Corporation (CTG) is a large state-owned enterprise with the mission of building the Three Gorges Project and harnessing the Yangtze River.

CTG positions itself as a top-ranking international clean-energy corporation. It takes the development and operation of large hydropower projects on the Yangtze River as its core business, proactively explores wind power and other new energies, and steadily extends its overseas hydropower business.

CTG now directly owns and operates four large hydropower projects on the Yangtze River, namely the Gezhouba Hydropower Project (2,735 MW), the Three Gorges Project (22,500 MW), the Xiangjiaba Hydropower Project (6,400 MW) and the Xiluodu Hydropower Project (13,860 MW).

By the end of October 2014, CTG’s total controllable installed capacity amounted to 48,754.9 MW, including 45,495 MW of large hydro and 3,259.9 MW of wind, solar, and medium and small hydro, added by 8,766.8 MW of capacity attributable to its equity investment.

As of 31 December, 2013, CTG’s consolidated assets amounted to USD 71 billion, while net assets were valued at USD 40 billion.

The Hydro Equipment Association (HEA) is an international not-for-profit organisation founded in 2001 and has been based in Brussels since 2010. It represents electro-mechanical equipment suppliers for hydropower globally. Its current full members are Alstom, Andritz Hydro and Voith.

Equipment suppliers are the most international players in the hydropower industry. They have gained comprehensive experience and a wider perspective on hydropower deployment. This global perspective guides HEA’s activities towards the most relevant issues for the industry, which is deeply rooted in engineering excellence.

The association is led by the Board of Directors which reports to the members’ General Assembly. To achieve its mission HEA’s permanent staff works closely with working groups covering topics such as research and development, greenhouse gases, sustainability or facts and figures, in which all members are welcome to participate.

HEA’s vision is to position hydropower as the first, largest and most efficient renewable energy source that also fulfills other needs, including C02 savings, energy storage, flood control, irrigation and water supply. The aim of the association is to improve the regulatory framework and the policy environment for hydropower by providing reliable information and arguments for the public debate.

In co-operation with leading global partners, HEA supports the development of the Hydropower Sustainability Assessment Protocol.

A donation initiative, the construction of the Itaipu power plant is the result of intense negotiations initiated in the 1960s between Brazil and Paraguay. The Treaty of Itaipu, legal instrument for the exploitation of the hydroelectric potential of the Paraná River in the reach shared by the two countries, was signed in April 26 1973.

In May 1974 the Itaipu Binacional company was created with the mandate of both countries to build and operate the Itaipu power plant. Generation began in May 1984. Nowadays, the power plant retains the title of the world’s leading producer of clean and renewable energy.

In 2013, for the second consecutive year, it broke the world record for a single power plant’s annual production, exceeding the 96,630,015 megawatt-hour mark. Over this year, Itaipu was responsible for supplying 17% of all electricity consumed in Brazil, and 75% of Paraguay.

In 2003, the company mission was changed to “generate quality electricity with social and environmental responsibility, driving economic, touristic and technological sustainable development in Brazil and Paraguay.” Itaipu’s vision for 2020 is to be “the generator of clean, renewable energy with the best operating performance and the world’s best sustainability practices, promoting sustainable development and regional integration.”

EdF leads major hydro projects in France, including €250 million invested in France’s biggest hydropower project Romans-sur-Geize, and €100 million invested in modernising the Rance tidal power station. In addition, EdF manages major projects abroad, including in Brazil, Cameroon and other developing countries.

EdF’s vision is to position hydropower as the first, largest and most efficient renewable energy source that also fulfills other needs, including C02 savings, energy storage, flood control, irrigation and water supply. EdF is renowned for its environmental expertise, as seen in the Romanche-Gavet project – a model of sustainability as defined by the Hydropower Sustainability Assessment Protocol – and the Combé-Madame biodiversité compensation project.

EdF Group’s hydro installed capacity is 20 GW in France (and 400 MW in Corsica and the French overseas departments), 1,443 MW in Europe, 2,800 MW in Switzerland and 1,000 MW in Laos. The company uses innovative high-tech tools such as regional e-operating centres for real-time performance, the e-storage project, and a variable-speed generator at the Cheylera pumped-storage facility.

In 2012, EdF launched the “Une rivière, un territoire” programme to boost the economy in the valleys with two main objectives: stimulating the development of innovative projects focusing on water, energy and the environment; and making use of local skills for EdF contracts.

EdF has also numerous exemplary initiatives in support of ecosystems, for example the re-establishment of natural habitats on Kemsb island (the biggest European project of its kind) and the lowering of the Pouilly Dam to support the local ecosystem.

EdF is renowned for its environmental expertise, as seen in the Romans-sur-Geize Project – a model of sustainability as defined by the Hydropower Sustainability Assessment Protocol – and the Combe Madame biodiversité compensation project.
King & Spalding, the leading international law firm that works in the global hydropower sector, advising sponsors and host governments during the development, construction, financing and/or acquisition of major hydropower projects worldwide.

During the past four years, our lawyers have supported the implementation of 23 major hydropower projects with more than 10,000 MW of aggregate installed capacity, located in Latin America, Africa, the former Soviet Republics, South Asia and Southeast Asia.

The company has a deep understanding of (i) the financing issues that project sponsors must address when developing hydropower projects that will attract senior-secured debt financing from multilateral institutions such as IFC as well as commercial banks, (ii) international and regional markets for civil works and electrical-mechanical equipment supply, (iii) strategies that mitigate political, credit, hydrology and dispatch risk, arising from the construction and operation of hydropower projects generally, (iv) the mechanisms required for the export of hydropower production across international boundaries, and (v) best international practices adopted by state and national governments that wish to develop their hydropower potential.

King & Spalding maintains a dedicated team of lawyers that works on hydropower projects worldwide from offices located in London, Singapore, Paris and Houston.

RusHydro is one of Russia’s largest power-generating companies in terms of installed capacity and the leader in power production from renewable energy sources, with a portfolio including water flows, tidal, wind and geothermal energy.

The company’s total electricity generation capacity is 38.2 GW, including Sayano-Shushenskaya, Russia’s largest hydropower station. The company has over 70 renewable energy source facilities: nine power stations in the Volga-Kama Cascade with a total installed capacity of more than 10,167 MW; the Zesikaya project (1,330 MW) – the first large-scale hydropower plant in Russia’s Far East, the Bureiskaya (2,010 MW) and Novosibirsk (455 MW) hydropower stations, and many more in the North Caucasus.

The company’s assets also feature geothermal stations in Kamchatka and the highly manoeuvrable Zagorskaya pumped-storage hydropower plant in the Moscow region.

RusHydro has a controlling stake in the RAO Energy System of the East, featuring 8,772 MW of installed capacity, including Sayano-Shushenskaya, Russia’s largest hydropower station. The company has over 70 renewable energy source facilities: nine power stations in the Volga-Kama Cascade with a total installed capacity of more than 10,167 MW; the Zesikaya project (1,330 MW) – the first large-scale hydropower plant in Russia’s Far East, the Bureiskaya (2,010 MW) and Novosibirsk (455 MW) hydropower stations, and many more in the North Caucasus.

SINOHYDRO Corporation has defined its business objectives as: (i) to establish a highly internationalized and competitive multinational company in the global engineering and construction industry and take the leading position in the international construction market; (ii) to establish a brand that enjoys a high reputation both at home and abroad; (iii) to build a stronger company and establish a strong corporate culture.

The company has ranked among the top 225 global contractors and top 200 international contractors by ENR, with an annual operating income exceeding CNY 30 billion. The company has also ranked among the top 140 contractors in the annual list of the China Top 200 Contractors, with an annual operating income exceeding CNY 10 billion. The company has also ranked among the top 100 contractors in the annual list of the China Top 200 Contractors, with an annual operating income exceeding CNY 10 billion.

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Eletrobrás Group represents a total installed capacity of 38,566MW, which includes 29 hydroelectric-fuelled power plants, 66 fossil-fuelled stations, 42 nuclear powerplants, and 15 fossil-fuelled stations, as well as two nuclear powerplants.

Eletronorte, Eletronuclear, Eletrosul, CGTEE, and, through shared responsibilities, Itaipu Binacional and Yacyretá, are responsible for most of the power supplied to the south-east Brazil.

Eletrobrás Eletronorte is a Brazilian state-owned generation and transmission utility. It was founded on 20 June, 1973 with its head office located in Brasília. Its generation system is composed of four hydropower stations: Tucuruí, the fourth largest hydro station in the world, Coaracy Nunes, Samuel and Cunha-Ura, in addition to thermal power stations. The total installed generation capacity is 9,983 MW, while the company’s transmission system covers 9,983 km. The energy generated by Eletrobrás Eletronorte supplies around 40 million Brazilians.

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Brookfield Renewable Energy Group operates one of the largest publicly-traded, pure-play renewable power platforms in the world. Its 6,700 MW portfolio is comprised of 204 hydropower facilities and 24 wind farms located in North America, South America and Europe. Approximately 85% of Brookfield Renewable’s total generation comes from hydropower facilities located on 72 river systems in Canada, the USA and Brazil. The company generates enough electricity from renewable resources to power more than three million homes on average each year.

Eletrobrás is the holding company of, among others: Chesf, Furnas, Eletrosul, Eletronorte, Eletronuclear, Eletrosul, COETE, and, through shared responsibilities, Itaipu Binacional and Light Participações. Eletrobrás Group represents a total installed capacity of 38,566MW, which includes 29 hydroelectric-fuelled and 15 fossil-fuelled stations, as well as two nuclear powerplants.

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Eletrosul Central Electric SA, based in Florianópolis, Brazil, conducts studies and designs, builds and operates transmission and electric power generation facilities in Brazil. Eletrosul’s transmission system serves 32.5 million people and comprises 71 substations, 11,300 km of transmission lines and 24,524 MW of installed capacity. It is also currently involved in the construction of a number of new hydropower projects.
HydroLancang, of the China Huachen Group, is the second largest hydropower company in China. It owns and manages large hydropower projects mainly along the Lancang river, including Nuozhadu (5,850 MW) and Xiaowan (4,200 MW). The company also actively develops other domestic and overseas clean energy resources, which include small and medium hydropower stations, wind power projects and a photovoltaic on-grid solar plant, the largest of its kind in Asia. HydroLancang is dedicated to delivering quality green energy to all customers.

Hydro-Québec generates, transmits and distributes electricity. Its sole shareholder is the Quebec government. Hydro-Québec generates more than 99% of its electricity from water – a source of clean, renewable and reliable energy. It also supports the development of other technologies – such as wind energy and biomass – through purchases from independent power producers. It also conducts research in energy-related fields, such as energy efficiency.

Hydro Tasmania is the largest water manager in Australia, and is the country’s leading renewable energy business, generating hydropower in Tasmania and trading electricity and energy-related environmental products in the Australian market.

Launched in 1949, International Water Power & Dam Construction has established itself as the leading monthly international publication serving the needs of those involved in dam construction and the hydroelectricity industries. Independently published, it offers a highly respected, unrivalled, in-depth, quality editorial to its readers.

With a monthly magazine, annual yearbook, weekly email newsletter and an extensive website at www.waterpowermagazine.com, International Water Power & Dam Construction is an absolute must for anyone involved in the hydropower and dams industry.

Neoenergia has an installed capacity of 1,536MW, which may reach 4,010MW by 2019 with new hydropower and biomass power plants. The group is the first private holding in Brazil awarded Standard & Poor’s BBB rating in the global scale, and AAA in the national scale.

The Neoenergia group is among the 40 largest private groups in Brazil and acts throughout the entire supply chain in the trade of electric energy: generation, transmission, commercialisation and distribution. The group is the first private holding in Brazil awarded Standard & Poor’s BBB rating in the global scale, and AAA in the national scale.

Construtora Norberto Odebrecht S.A. is present in 19 countries and has constructed hydroelectric power plants with an installed capacity of 52,800MW. The company has been building dams and hydroelectric plants for over 60 years, and is the largest company in its sector in Latin America. Over the past ten years Odebrecht has been one of the world’s top three builders of hydropower projects.
PennWell Corporation is the world’s leading provider of hydropower and dam-related information, including new development, pumped storage, dam construction, sustainability, marine hydromechanics, and operations/maintenance.

PennWell publishes two leading circulation magazines, HRW - Hydro Review Worldwide and Hydro Review, and HydroWorld Weekly e-newsletter highlighting news from www.hydroworld.com. PennWell also organizes some of the largest hydro events around the world, including HydroVision International, HydroVision Russia and HydroVision Brazil.

Building on more than a century of experience and expertise, Rio Tinto Alcan is a global leader in the aluminium industry, and one of the world’s largest producers of high quality bauxite, alumina and aluminium worldwide. Our leadership is reinforced by our: access to the largest and best quality bauxite reserves in the industry, benchmark AP™ smelting technology, and enviable hydropower position. Rio Tinto Alcan is the aluminium product group of Rio Tinto, a leading international mining company.

The SN Power Group invests in clean, renewable energy on commercial basis in emerging markets. The Group focuses on acquiring, developing, constructing and operating hydropower assets. It has operations in South-east Asia, Central America and Africa. The Group is a joint venture between Statkraft and Norfund. The SN Power Group has a multinational team of people employed globally in its operations and projects and is headquartered in Oslo, Norway.

Tractebel Energia S.A. has a portfolio of 27 power plants throughout Brazil and is the country’s first private independent power producer. The company’s installed capacity of 8,748 MW represents 7 per cent of Brazil’s total power generation capacity. Close to 80 per cent of this capacity relies on clean and renewable energy sources, mainly big hydropower plants, all with ISO 9001, 14001 and 16001.

Tractebel Energia is listed and is 68.7 per cent controlled by the international group GDF SUEZ.

Alpiq is a leading power producer in Switzerland and its largest energy services provider, with activities in 20 European countries. With over 100 years of experience, Alpiq owns and operates hydropower plants in four European countries, with a total installed capacity of 3,000 MW and an average yearly production of 6,000 GWh.

Alpiq participates in two of the largest pumped storage projects in the Alps, which will provide an additional 1,200 MW of capacity within the coming years.

Bhote Koshi Power Company Private Limited (BKPC) owns and operates the Upper Bhote Koshi Hydroelectric Project (UBKHEP) which is the first privately funded, run-of-the-river hydroelectric power project in Nepal. BKPC was incorporated in 1996 under the Nepalese Company Act. Its plant is situated in the Sindhupalchok district of central Nepal, and is approximately 110km northeast of Kathmandu. The UBKHEP is a 45MW power plant with two turbine/generator units.

Over 75 years, Camargo Corrêa has built a legacy that features iconic engineering feats in energy, oil and gas, infrastructure and industry, in Brazil and Latin America and Africa.

In Brazil, the company is recognised as the major company in the construction of hydroelectric plants and over 50% of the entire generating park from water sources have Camargo Corrêa’s participation. The company participated in four of the five major hydroelectric plants in the world: Itaipu, Belo Monte, Tucuruí and Guri, in Venezuela.

CARPI, established in 1963, by using synthetic geomembranes, has gained a worldwide experience and reputation in the waterproofing and protection of all types of hydraulic structures (concrete, RCC and embankment dams, reservoirs, canals, tunnels), and of underground structures, civil works and environment protection facilities.

The company has pioneered new installation techniques that are now patented systems, while continuously introducing new, higher performance products to the market.
Silver

Cennergi Pty Ltd. is an independent power producer based in South Africa that focuses on the development, ownership, operation, maintenance, acquisition and management of electricity generation assets in sub-Saharan Africa.

cennergi.com

Cesp

Companhia Energetica de Sao Paulo (CEESP) is the largest electric power generation in the State of Sao Paulo and the third largest in Brazil and Latin America.

It has six hydropower plants, three located on the Rio Parana (Ria Sotisera, Engenheiro Sergio Motta and Engenheiro Souza Dias), one located on the Tiete river (This Imbold) and two located on the Rio Parana do Sul (Parabuna and Jaguar); with a total installed capacity of 7,455 MW.

cesp.com.br

Changjiang Institute of Survey, Planning, Design and Research (CISPDR) is a stated-owned high-tech enterprise and an international contractor certified by the Ministry of Commerce of China. It is mainly engaged in engineering survey, planning, design, scientific research, consulting, construction supervision, construction management and EPC contracting for projects in China and abroad.

It successfully completed survey, planning and design for the Three Gorges project and the South-to-North Water Diversion project, two of the most important hydraulic projects in China.

CISPDR.com.cn

Chesf

Companhia Hidro Eletrica do São Francisco (Chesf) is a subsidiary of Centrais Eletricas Brasileiras S/A (Eletrobras). The company owns and operates 14 hydropower plants, one thermal plant, 110 substations and more than 18,000km of transmission lines. It has a total capacity of 10,615 MW.

Chesf is the largest hydropower company in Brazil and believes that hydropower continues to make a major contribution to the country’s sustainable development.

cesf.gov.br

Ckpower

CK Power Public Company Limited (CKP) is the first Thai holding company listed on the Stock Exchange of Thailand with its core assets overseas. The company engages in businesses that create sustainable energy and focuses on investment in power business, both in Thailand and in ASEAN region under efficient management.

CKP Power is also committed to social responsibility for all stakeholders in order to develop sustainable energy while balancing the environment and the quality of life for the people and society.

ckpower.co.th/en

Silver

Copes

Companhia Paranaense de Energia (COPES) is a Brazilian utility founded in 1954, based in Curitiba, Parana. The company directly serves more than 4.2 million energy consumers.

COPES operates 18 hydropower plants with a combined installed capacity of 4,731 MW, providing about 5.3% of the total electricity consumed in Brazil. Its transmission system totals 2,374 km in lines and 33 substations, amounting to 12,352 MVA of transformation power.

copes.com.br

Cpfl Geração

Over the years, Brazil has been preparing to meet population growth and the increase in demand for energy. But how can this be reconciled with environmental awareness?

Cpfl Geração, one of the subsidiaries of CPFL Energia, the largest private company in the Brazilian electricity sector, strongly invests in a diversified portfolio with 2,234MW total capacity, mostly composed of highly efficient hydroelectric projects.

cpfl.com.br

Daewoo

Daewoo E&C has been enriching people’s lives ever since its establishment in 1973. The company has successfully completed more than 300 projects, and is operating 52 projects overseas, with an installed power capacity of more than 30,000 MW across 13 countries.

One of its significant projects is at Shisha Lake, the world’s largest tidal power plant with an output capacity of 254 MW. In addition, the company had completed four hydropower plants in Pakistan, Laos, India and Korea.

daewoo.com

Dolsar Engineering

Dolsar E&C, established in 1971, is a multi-disciplinary engineering firm which performs engineering, architectural, consultancy and supervision services for large-scale projects in a wide range of fields including water and land resources development, energy production and distribution, environment, transportation and buildings.

The company has been listed among the top 150 engineering companies in Europe. Besides projects in Turkey, its experience also covers projects in Azerbaijan, Bosnia-Herzegovina, Cyprus, India, Iraq, Pakistan, Georgia, Saudi Arabia, Turkmenistan and Uzbekistan.

dolsar.com.tr

Dongfang Electric Machinery

Dongfang Electric Machinery Co., Ltd., located in Sichuan, China, has produced more than 300,000 MW in power-generating equipment since 1958. It successfully supplied 8x700 MW Francis units for China Three Gorges, and 9x70 MW Francis units for the Xiaowan project.

It is also the major supplier of China’s Jiayu project, providing 22x75 MW of the world’s largest tubular hydropower units. Recently, DFEM has been commissioned by Baihetan to supply 8x1000 MW Francis units, the world’s largest single-capacity turbines.

en.dfem.com.cn
E-CO ENERGI is one of Norway’s leading energy groups. Its core activities are the ownership and management of hydropower plants and development of new renewable power projects. The group is Norway’s second largest hydropower producer, with an average production of 9.7 TWh per year. Its production capacity is approximately 2,800 MW. The City of Oslo owns 100 per cent of the parent company, E-CO ENERGI Holding AS.

**ECOFISH RESEARCH**

Ecofish Research is a Canadian company established in 2000, specialising in environmental assessments, fish and aquatic habitat assessment, environmental monitoring, and wildlife, vegetation and habitat assessments. With a team of experienced, skilled professionals, Ecofish Research offers a broad range of environmental services including study design, data collections and analysis, reporting, strategic advice, agency liaison and permitting, environmental management planning, mitigation and compensation planning, and environmental monitoring.

ecofishesresearch.com

**EMPRESIAS PÚBLICAS DE MEDELLÍN (EPM)**

Empresas Públicas de Medellín (EPM) is a state-owned utilities company in Colombia, with a 22.6 per cent market share, generating 3,244 MW. EPM has 26 generation plants, comprising 24 hydroelectric plants, one 460 MW thermal plant and a 19.5 MW wind park. EPM is constructing the Ruango hydroelectric project (2,400 MW) which is the largest in Colombia and is developing the Bonnyic hydroelectric power plant in the Republic of Panama. The company contributes to well-being and equitable development in communities.

epm.com.co

**ENERJISA**

Enerjisa Power Generation was established in 1996 to explore new business opportunities in the energy sector, and to operate as a reliable and capable supplier of energy. The company has around 2,800 MW of a total installed capacity, including five natural gas combined cycle power plants, twelve hydroelectric power plants and three wind energy power plants operating in various cities.

enerjisa.com.tr

**HARBIN ELECTRIC MACHINERY CO**

Founded in 1951, Harbin Electric Machinery Co., Ltd is one of the key domestic large-scale power generating equipment manufacturers in China, with an annual productivity of 40 GW. The company’s main products include hydro turbines, hydro generators, turbo generators and controlling equipment. The company’s large-scale hydropower units account for nearly half of the total installed capacity produced by Chinese manufacturers. As well as supplying Chinese markets, its products have been exported to 47 countries, including USA, Canada, Japan, India, Brazil and Russia.

hec-china.com

**HIDROELÉCTRICA DE CAHORA BASSA (HCB)**

Hidroeléctrica de Cahora Bassa (HCB) operates the Cahora Bassa hydropower plant, which has an installed capacity of 2,906 MW. Located in Tete province, Mozambique, the company’s mission is to generate, transmit and sell clean electricity efficiently and sustainably, maximising the benefits for the shareholders and generating wealth for the country.

In 2009 the company launched its environmental management policy, under which it is pushing for ISO 14001 certification. In July 2014, the company obtained ISO 9001 and OHSAS 18001 certification for its integrated management system.

hcb.co.mz

**HINDUSTAN POWER PROJECTS**

Hindustan Power Projects is a leader in India’s energy sector, with a vision of commissioning 7GW by 2020 in thermal, solar and hydro. A portfolio of 350 MW solar energy has been created. The group is committed to sustainably developing clean renewable energy.

The group is due to commence construction of the Miyar (120 MW) and Seli (400 MW) hydropower projects in Himachal Pradesh, India. It is developing three hydro projects totalling 1,400 MW in Nepal’s Bheri Basin, and a 50 MW project in Sikkm, India.

hindustanpowerprojects.com

**HNAC**

HNAC Technology Co., Ltd. (UNIDO ICSHP Changsha Base) has been dedicated to providing engineering, procurement and construction services, and overall automatic solutions, to hydropower stations, substations, pump stations and water treatment projects since 1993.

HNAC has provided efficient and qualified products and services to over 6,000 projects worldwide. Since 2011 it has organised international training workshops on hydropower technology under the guidance of MOST.

en.cshnac.com

**ENERGY NORWAY**

Energy Norway is a non-profit industry association representing about 270 companies involved in production, distribution and trading of electricity in Norway. The power-producing members generate close to 130 TWh yearly, which counts for approximately 99 per cent of all power production in Norway. Meanwhile, the grid members represent approximately 2.5 million customers, about 91 per cent of Norway’s grid customers. The members of Energy Norway have approximately 15,000 employees and an annual gross turnover to end-users of 10 billion EUR.

energinorge.no

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hcb.co.mz
JINDAL POWER

Jindal Power Limited, a subsidiary of Jindal Steel & Power Limited, is one of India’s leading power generation companies with a thermal and hydropower project portfolio in various stages of operation, implementation, development and planning.

Jindal Power Limited currently has hydropower projects totalling about 5,600 MW under development – Etalin (3,097 MW), Kamala (1,800 MW), Atturnd (880 MW) and Annpapuri (22 MW) – in the state of Arunachal Pradesh in North-Eastern India. These are being developed in joint venture with the state government.

Jindal Power Limited is a member of the Jindal Group. The group’s assets include 12 thermal power stations with a total capacity of 4,000 MW, and 10 projects totalling about 5,600 MW under development.

Jindal Power Limited has been ranked as the second company in India in terms of installed capacity in the renewable energy sector. Its hydropower projects are spread across India, and it is also engaged in various hydro projects in Nepal and Indonesia.

KONČAR-KET

KONČAR's main activities are engineering, procurement and construction contracts for the development, implementation, development and planning of hydropower plants. KONČAR's expertise of development for all types of hydropower projects, dam and hydraulic structures.

KONČAR has more than 1,500 employees, and more than 500 employees are engaged in the hydropower sector, the company covers all phases and services from initial planning and design through construction, start-up and operations on projects small and large throughout the world.

KONČAR is active in 180 offices worldwide, and one of the foremost consultancies in the international power market.

LARSSEN & TOUBRO

Larsen & Toubro Limited (L&T) is a technology, engineering, construction and manufacturing company with an international presence, marked by a global spread of offices. The company’s businesses are supported by a wide marketing and distribution network, and have established a reputation for strong customer support.

L&T believes that progress must be achieved in harmony with the environment. A commitment to community welfare and environmental protection are an integral part of the corporate vision.

LUNSEMFWA HYDRO POWER COMPANY

Lunsemfwa Hydro Power Company Limited (LHPC) is the first independent power producer in Zambia. LHPC, having expanded its installed capacity by 50 per cent in the last ten years, operates two hydropower plants with a total installed capacity of 56 MW.

LHPC is currently undertaking feasibility studies and has a strategic plan to increase the installed capacity to 100 MW by 2020. LHPC is a subsidiary of Aguas Imara, an SN Power Group company.

KEMIJOKI OY

Kemijoki Oy is the major producer of hydropower and related services in Finland. It owns 20 hydropower plants and operates the Lokka and Porttipahta reservoirs, and also Lake Kemijärvi and Lake Oikinäpiä.

At 5,017 gigawatt hours, the company last year exceeded average hydropower production by 13 per cent. River Kemijoki accounted for 92 per cent of the electricity produced, with River Liesjoki and River Kymi providing the remainder.

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NORCONSULT
norconsult.com

NuPlanet
Nuplanet.co.za

PACIFIC HYDRO
PacificHydro.com

POYRY SWITZERLAND
poyry.ch

RAZEL BEC
razel-bec.com

NORCONSULT is a multidisciplinary engineering and design consultancy, providing services to clients in the public and private sectors worldwide.

The company provides services within the power sector, including power system studies and hydropower engineering, from the initial reconnaissance through all phases of design, tender preparations, investigations, contract evaluation, construction supervision and commissioning.

NuPlanet is a developer, owner and operator of green-field and refurbished independent power plants (IPPs) in the range of 2 MW to 50 MW across southern and eastern Africa.

The company has developed the 3 MW Sol Plaatje project (2009), the 4 MW Merino project (2010) and the 5 MW Stortemelk Hydro power project (under construction).

Pacific Hydro is a global clean energy solutions provider. Operating for over 20 years, the company develops, builds and operates renewable energy projects, and sells electricity and carbon abatement products to customers in its chosen markets.

With hydro and wind power projects at varying stages of development, construction and operation in Australia, Brazil and Chile, the company’s vision is to create economic, social and environmental value by being its customers’ preferred clean energy solutions provider.

Pöyry is one of the world’s leading hydropower engineering companies and has designed hydropower schemes all over the world for more than one hundred years. Its successful design and supervision services cover all types of hydropower schemes, which include an installed capacity of more than 100,000MW in the past 20 years alone.

The company’s experts are available to assist its clients worldwide in each project phase as consultants, owners, contractors, lenders or engineers.

RAZEL-BEC’s main activities are civil works, tunnelling, dams, earthworks for road, and linear infrastructure and environmental projects. In 2013 the company achieved a turnover of €815m, with 25% of its activities overseas, mainly in Africa. It has a permanent workforce of 6,000.

RAZEL-BEC’s significant hydropower-related projects include the ongoing 1.0 Mm3 RCC arched gravity Tabellout Dam and its 13 km transfer tunnel, the 1.6 Mm3 RCC gravity Koudiat Acerdoune Dam in Algeria, and the 54 MW Rzannahine hydropower project.

Regional Power, a subsidiary of Manulife Financial, has been in the business of developing, building, refurbishing and operating hydroelectric power plants in Canada for over 25 years. The company currently operates nine hydro plants with a total generating capacity of 88 MW.

The company has nine projects in various stages of development, with an estimated 320 MW of total generating capacity. Two of its hydroelectric sites are currently under construction, with a total estimated generating capacity of 19 MW.

Savške Elektrarne Ljubljana has a long tradition in its main economic activity, which is the production of renewable hydroelectric power. The company’s oldest hydropower plant, HE Zavrsnica, has been operating since 1914. In addition to its core business, the company also performs operation and maintenance for the continued production of hydroelectric power (electricity maintenance, hardware and telecommunications equipment and constructions).

Established in 2000, Hidroelectrica is the leader of the Romanian energy market. With an average output of more than 177TWh in an average hydrological year, the company provides 30 per cent of the country’s total power generation and 90 per cent of the ancillary services needed for the operation of the national power system.

With a powerful organisational culture, Hidroelectrica aims to become the regional leader in green energy generation, with constant high value added for shareholders and the community.

Since 1914, Schluchseewerk AG, based in Southern Germany, operates five pumped-storage power plants with a total of 20 generating units, 14 dams and an output capacity of 1,836 MW in turbine and 1,604 MW in pump operation. It also operates the run-of-river station Rheinkraftwerk Albbruck-Dogern AG.

Schluchseewerk AG provides cost-efficient and large-scale integration of renewables, and is crucial for system stability and security of supply. It is currently planning to build the pumped-storage plant Aldorf, with 1,400 MW installed capacity.

With over 100 years’ experience, SNC-Lavalin’s hydro division covers all hydro solutions, from planning and feasibility studies, to engineering, procurement, construction, supervision and commissioning of facilities.

Engineering News-Record consistently rates SNC-Lavalin as one of the top international design engineering firms on the continent.
SILVER

SNOWY HYDRO

Snowy Hydro Limited is an integrated water manager and energy business. Using its portfolio of generation assets including the 4,100 MW Snowy Mountains Scheme, the 300 MW Valley Power gas-fired power station and the 320 MW Laverton North gas-fired power station – both located in Victoria – the company provides national electricity market participants with price risk management products. Snowy Hydro is also the parent company of Red Energy and Luma Energy, two successful electricity and gas retail companies.

snowyhydro.com.au

STELBA HYDRO

Founded in 2002, Stelba Hydro is a private, medium-sized company specialising in the revision, modernisation and upgrading of hydroelectric power. Its focus is to exploit potential and build robust, efficient machines. Hydroelectric power plants must be maintained as a long-term investment over their entire lifespan. Stelba Hydro is ISO 9001 certified and offers a range of support ranging from a simple inspection of a part through to a general revision.

stelba-hydro.de

STUCKY

Established in Switzerland, Stucky is an engineering consultancy firm, specialising in hydropower and active worldwide. Stucky is a member of the Gruner Group, established in 1862, and is the largest infrastructure consultancy in Switzerland with over 1,000 engineers. Stucky’s state-of-the-art expertise covers all aspects of hydroelectric projects. Working on the basis of a project-focused organisation, Stucky provides engineering and project management services from the identification stage to the design and commissioning of complete power schemes.

stucky.ch

TECNICAS REUNIDAS

Tecnicas Reunidas (TR) has developed intense activities in the field of hydraulics and water over the last four decades, focusing on water planning and project evaluation at the conceptual phase and also participating in the construction, operation and maintenance of Large Hydro Developments. Active in 55 countries and with more than 1000 international projects executed all over the world, TR undertakes a wide range of works, including hydroelectric power plants, water resource planning, dams, irrigation, agricultural and rural development.

tecnicasreunidas.es/en

SILVER

TIWAG – TIROLER WASSERKRAFT

TIWAG - Tiroler Wasserkraft AG, is located in Innsbruck, Austria, operating nine large >10MW and 40 small <10MW hydropower stations, with a maximum capacity of 1,544MW. The most important are the pumped storage hydropower station Söllrain, the hydropower station Sitz (781MW) and the Kaunertal hydropower station (392MW).

tiwag.at

TRACTEBEL ENGINEERING / COYNE ET BELLIER

Founded in 1947, Tractebel Engineering (France) specialises in hydraulics, electricity (hydroelectricity, nuclear, wind, solar, etc.), gas and major infrastructures. Active under its original trademark Coyne et Bellier, the company has planned, designed or built more than 600 dams and 90 hydropower plants (65 000MW) in 100 countries over 65 years. Since 1977, Coyne et Bellier is part of the Tractebel Engineering Group, active worldwide in the energy sector, with branches in Europe, South America, Africa, Middle East and Asia.

tractebel-engineering-gdfsuez.com

UKRHYDROPROJECT PJSC

Incorporated in 1927, Ukhydroproject has become Ukraine’s largest engineering company specialising in the field of hydropower and water resources development. It has designed hydropower plants on the Dnieper and Dniester rivers, and constructed pumped-storage plants on the Dnieper and Southern Bug rivers. The company is currently constructing Europe’s largest pumped-storage plant on the Dniester. It also designs and constructs overseas, with a portfolio including projects in Vietnam, Mexico, Venezuela, Iraq and other countries.

uhp.kharkov.ua

UPSTREAM AYEYAWADY CONFLUENCE BASIN HYDROPOWER CO

Upstream Ayeyawady Confluence Basin Hydropower Co., Ltd. (ACHC) is a Sino-Myanmar joint venture company, registered in the Republic of the Union of Myanmar. It is responsible for developing hydropower projects with a total installed capacity of about 20,000 MW on BOT terms in the Ayeyawady River Basin upstream of Myitkyina, the capital city of Kachin State in the northern Myanmar, in a sustainable and environment-friendly manner. After the concession period, these projects will be transferred to the Myanmar Government free of charge.

uachc.com
Verkís was founded in 1932, making it the oldest consulting firm in Iceland and at the forefront of hydropower plant design and engineering. The firm has been the leading designer of most hydropower plants in Iceland, with projects ranging from a few kW to 690 MW, harnessing heads up to 600 m. Verkís provides high-quality services in all fields of engineering. Hydropower services range from feasibility studies and tender document preparation to detail and final design, as well as commissioning.

The Volta River Authority (VRA) is the principal energy infrastructure development agency for the generation of electrical power in Ghana. For more than four decades, the VRA has harnessed the resources of the Volta Lake to produce Ghana’s power needs. Currently, the VRA operates a total installed electricity generation capacity of 2,044 MW. This includes two hydroelectric plants on the Volta River, with installed capacity of 1,224 MW and 160 MW at the Akosombo and Kpong generating stations respectively.

WorleyParsons is a leading provider of project delivery and consulting services to the resources and energy sectors. Across its global network, the company uses extensive expertise to deliver small studies through to delivery of mega-projects, covering a range of 1 MW to over 10,000 MW. The company’s hydroelectric centre in Brazil, augmented by its Canadian offices, provides customers with world-class hydroelectric engineering, operation and refurbishment, integrated with in-depth local knowledge and a wealth of experience in feasibility, environmental and social appraisals.

ZESCO Limited is a parastatal company formed after the enactment of the Zambia Electricity Supply Act. It was established in 1970, and its governance has evolved over time to one that defines an arms-length relationship with Zambian Government. The company currently owns eight hydropower stations with a combined capacity of 2,216 MW and diesel power plants with a combined capacity of 8 MW, resulting in a total installed capacity of 2,224 MW. The company also has power distribution and transmission lines of 15,142 km.

UkrHydroEnergo was established in 2002 in order to answer and protect social, cultural, economic interests of its members. Today, the association unites more than 50 individual and collective members, who represent almost all regions of Ukraine. Members of the association are involved in the practical aspects of setting up, reconstructing and operating hydropower stations, including small hydropower stations.

Hohai University is a state key university under the direct jurisdiction of the Ministry of Education of China. The faculty and graduates of Hohai University have been extensively involved in the research, design, construction and management of engineering projects such as the Yangtze River Three Gorges Project, the South-to-North Water Transfer Project and the Yellow River Xiaolangdi Project. Hohai University has a student population of over 33,000, including over 9,000 graduate students and more than 20,000 undergraduate students.

The Indian National Hydropower Association (INHA) was established in June 2003 to provide a forum for the exchange of views and enhancement of knowledge for developing the balance potential in a sustainable manner. The organization also works to advocate the interests and represent the views of Indian hydropower fraternity.

INHA aspires to become the voice of Indian hydro sector across the national and international spectrum for promotion of its sustainable development.

Instituto Acende Brasil is a think tank dedicated to increasing the transparency and sustainability of the Brazilian electricity sector. Its scope involves the following sectors: regulation, corporate governance, taxes and subsidies, tariff policy, and environmental and social aspects. The team of executives and researchers at Instituto Acende Brasil combine the industry experience and multidisciplinary competencies required to develop technical, economic and regulatory studies, R&D projects and training programmes across all the fields of the electric sector.
The Polish Hydropower Association was founded in 1991 and currently has 176 members. The main goal of the association is the protection and representation of the hydroelectric power industry, and active support of the development of hydropower and other renewable energy sources. The association operates mainly in the areas of water management and renewable energy: providing analysis, development and expertise; organising exhibitions, conferences, seminars and training; and organising promotional activities and advertising.