

WHAT ARE THE ADVANTAGES OF HYDRO POWER PROJECTS IN COMPARISON TO OTHER RENEWABLE ENERGY PROJECTS?

Hydro power projects have numerous advantages. Firstly, these projects are environment friendly as they utilise water to generate electricity; they are non-polluting and do not create toxic byproducts. Secondly, hydro power is renewable, as it relies on the hydrological (water) cycle. Thirdly, hydro power can rapidly meet the changing demands for

essential to ensure electric transmission grid stability.

Apart from these, hydro power has other advantages such as it is a secure source of energy because it is not subject to disruptions from foreign suppliers, cost fluctuations and transportation issues associated with other fuel sources. Besides, it has low operating costs and a long power plant life as compared to other power-generating options. Once the initial investment is made, the power plant's

development of areas where hydro power plants have been set up. Being located in remote regions, these power projects contribute to the development of interior & backward areas in terms of education, medical, road communication and telecommunication, among other fields.

WHAT KIND OF FUTURE DO YOU FORESEE FOR HYDRO POWER PROJECTS IN INDIA?

Globalised and consumerised India

Globalised and consumerised India needs a sustainable development mechanism for a better tomorrow

“Every aspect of our life needs sustainability; small hydro projects and micro hydro projects are viable options for energy sustainability. Today, India has one of the highest potentials to effectively utilise renewable energy resources,” avers Ajay Sawhney, Director – Operations, IMP Energy Ltd. During an interaction with Devyani P Korgaonkar, he reveals the bright possibilities of hydro power projects in India. Excerpts...



electricity. Fourthly, the present hydro power turbines are capable of converting more than 90% of the available energy into electricity. Therefore, they are more efficient than fossil fuel power plants (that are about 50% efficient), thermal power plants (that are 35% efficient) and gas-powered plants (that are around 50% efficient).

Fifthly, hydro power output can be changed quickly in response to the changes in the demand for electricity because of the ability to control the flow of water. This ability is considered

life can be extended economically and remain in service for many years. Typically, a hydro power plant, in service for 40–50 years, has the potential to double its operating life. In addition, hydro power facilities have the ability to generate power without using an outside source of power. This service allows system operators to provide auxiliary power to more complex generation sources that could take hours or even days to start.

Lastly, hydro power has played an important role in the growth and

needs a sustainable development mechanism for a better tomorrow. Every aspect of our life needs sustainability; small hydro projects and micro hydro projects are viable options for energy sustainability. Today, India has one of the highest potentials to effectively utilise renewable energy resources.

The country has an estimated small hydro power potential of about 15,000 MW, out of which only 11% has been tapped. To achieve this, development and management of water resources

are essential. This can be attained through private institutionalised participation and transparent decision-making processes, thereby achieving sustainable outcomes that benefit the entire country.

The benefits could be producing reliable and sustainable power. Besides, we shall get cheaper electricity, as there is no fuel cost involved and the recurring cost is involved in generation. Operation and maintenance are also very low as compared to other resources. Additionally, it is environment friendly and can increase our agricultural productivity. Its social benefits include enhanced employment opportunities, enriched lifestyle and improved standard of living.

WHAT ARE THE MAJOR THRUST AREAS IN THE ENVIRONMENTAL CONSERVATION & MANAGEMENT FOR GENERATING HYDRO POWER IN INDIA?

Firstly, it is important to minimise the uprooting of trees in the project areas; in cases where trees have already been uprooted, planting trees in nearby areas should be made mandatory. Secondly, there is a need for Catchment Area Treatment (CAT) to minimise erosion in the catchment of the trench/reservoir, thereby reducing the recurrence of the siltation. Also, implementing a reservoir/trench wire rim treatment plan is vital to stabilise reservoir periphery. Besides these, it is critical to implement measures to conserve the flora and fauna native to the project site area and rejuvenating dumping & project sites using engineering and biological methods.

AFTER THE UTTARAKHAND DISASTER, WHAT IS YOUR OPINION ON ESTABLISHING HYDRO POWER PLANTS IN THE HIMALAYAN REGION? WHAT KIND OF PRE & POST SAFETY MEASURES SHOULD BE ADOPTED?

There is a need for proper planning and designing of hydro power projects. The project should be built such that it can avert the consequences of natural

CREDENTIALS

Ajay Sawhney is Director – Operations, IMP Energy Ltd. He has a Bachelor’s Degree in Electrical Engineering from NIT, Jaipur. Sawhney started his career with the Power Development department in J&K and served there from 1989 to 2009. Over these 20 years, he worked in the same company in various capacities. He was also associated with the setting up, operation and maintenance of hydro power plants in the hilly areas of J&K. He spent two years as a freelancer for providing expert and connoisseur advice on the designing, planning and setting up of hydro power plants. (2009–2011). Subsequently, he joined IMP Powers Ltd to set up its 100% subsidiary—IMP Energy Ltd. He identified the inhospitable and inaccessible difficult hilly terrains of Leh & Ladakh and has managed to bag around six turnkey hydro power projects in the state.

calamities. But more importantly, the project should not become the source of causing such calamities, especially in the Himalayan region. In addition, every pre-project report should be authorised by a competent authority and continuous vigilant engineering processes should be adopted. Once the project is complete, it should be technically well looked after to ensure that it remains maintenance free.

WHY HAVE YOU CHOSEN J&K FOR YOUR HYDRO POWER PROJECT? WHAT IS THE TOTAL AREA IT OCCUPIES?

We have always emphasised on setting up hydro power plants in rural and remote areas, which face electricity deficit as we want to develop these areas. We have zeroed in on J&K for a project as the state has huge potential for hydro power generation. As per a recent survey, 246 sites have been identified as probable small hydal sites in the state with a capacity of upto 1,411.72 MW. Moreover, owing to the challenging terrains, we are mainly concentrating on small & micro hydro projects in J&K.

WHAT IS THE POWER PRODUCTION CAPACITY OF THE PLANT? TELL US KNOW ABOUT ITS DISTRIBUTION & UTILISATION PROCESS.

In a span of one year, IMP Energy Ltd has bagged good orders from Ladakh Renewable Energy Development Agency (LREDA) and Kargil Renewable Energy Development Agency (KREDA).

These projects are in the most challenging mountainous terrains. Under LREDA, at Nubra Valley, Leh-Ladakh, we are doing the penstock erections work (inclusive of civil work) of a 2X250 KW-MHP at Tsati, a 2X400 KW-MHP at Bogdang, a 2x400 KW-MHP at Chulungkha and a 2 X 250 KW-MHP at Turtuk. We have also bagged the complete turnkey projects of 2X300 KW-MHP at Shayok and 2X600 KW-MHP project at WARIS-III.

Under KREDA, we have bagged complete turnkey hydro power projects in Kargil such as a 2X750 KW-SHP project at Bairass, Drass, a 2X750 KW-SHP project at Khandi and a 2X750 KW-SHP project at Sangrah. All these projects are still in the execution stage.

TURBINES USED IN YOUR PROJECTS?

Depending on the technical requirements of the projects and the designed water heads, we intend to use Francis turbines.

HOW ARE YOU DEALING WITH THE SEDIMENTATION PROBLEM OF THE RESERVOIR?

In order to deal with the sedimentation problem of the trench/reservoir to be built, we will opt for CAT to ensure reduction of silt loads, effective de-silting arrangements for prevention of silt and silt resistant equipment to ensure withstanding the silt. ■

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