Protection against lack of water

Insufficient water levels can put hydropower plant operators under immense pressure. To protect them against loss of income resulting from this threat, Swiss Re has developed a dedicated index-triggered insurance product.
The gathering momentum of renewable energy generation is accompanied by the inherent unpredictability of renewable power sources and the corresponding financial risk.

This risk affects renewable energy producers and an ever-growing number of stakeholders along the value chain.
Weather plays a crucial role in the power output of the main renewable energy segments of wind, solar and hydropower. Any shortage of renewable resources can critically impact the power production potential.

Renewable energy production is on the increase around the world. Although a promising development in itself, the energy resources involved are inherently volatile. Accordingly, the growing production output is placing an increasing financial risk on energy producers and other stakeholders along the value chain, particularly in the wake of climate change.

Swiss Re’s Lack of Water Insurance offers a tailor-made, innovative mechanism to manage unpredictable earnings fluctuation and associated financial distress due to variations in water levels. It uses a simple and transparent structure based on an agreed official index or statistics provided by an agreed third party. This allows hydropower plant operators and investors to concentrate on growing their business while maintaining a more stable cash flow.

Cover

Protection of hydropower plants against loss of income due to lack of water

Based on the individual location, type of data available, setup and technology of the given hydropower plant

Swift and easy settlement triggered by an official index or statistics provided by an agreed third party (eg NASA, national weather services, national water board)

Advantages

- Effective mechanism to manage earnings volatility
- Protection against financial distress
- Protection against natural phenomena, such as El Niño/La Niña
- Simple and transparent structure
- Can be tailored to individual risk appetite
- Effective instrument to meet investment targets
- Swift pre-agreed payment based on index values
### Protection against lack of water

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<td>- Declining interest from investors, downgrade of bond rating</td>
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<td>- Additional uncovered costs to operate backup thermal power plant in the absence of water</td>
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<td><strong>Turbine manufacturers/ Installers</strong></td>
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<td><strong>Primary insurers</strong></td>
<td>- No differentiation from competitors</td>
<td>- Additional cross-selling opportunities, as product provides a platform to discuss other earnings protection products</td>
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<td>- No solution for clients’ needs</td>
<td>- Complements product range of traditional insurers and makes their offer to clients more compelling</td>
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The success of hydropower projects is heavily dependent on the predictability of revenue stream tariffs and prudent resource forecasts.

With continuous change in the atmospheric composition and growing precipitation volatility, water levels in reservoirs can vary significantly. Particularly in years with relatively low precipitation levels, hydropower plant operators may sustain large losses as they struggle to cover operating costs and financial obligations and meet return targets.

With insurance against lack of water, operators and investors receive steady revenue from hydropower plants and are thus able to concentrate on growing their business while maintaining a more stable cash flow.

Reinsurance value proposition

Complementing the traditional covers during construction/erection and operation of hydropower plants, Swiss Re offers additional protection against lack of water.

Indemnification

- Loss of energy production due to lack of water

Value of annual hydropower production

- Value of annual hydropower production with insurance

Client needs

- Generate steady cash flows with hydropower projects
- Maintain good rating of current hydropower projects in order to enable financing of future projects

Benefits

- Offers investors maximum protection against loss of income due to lack of water
- Improves investment planning
- Stabilises profits and facilitates the financing of new projects
- Mitigates additional costs to operate thermal power in the absence of water supply
The indexed triggered cover

Based on the individual location, type of data available, setup and technology of the given hydropower plant, insurance against lack of water foresees a tailor-made mechanism to manage earnings volatility and associated financial distress using a simple and transparent structure based on an official index or statistics provided by an agreed third party (e.g., NASA, national weather services, national water board).

Calculation of the modelled turnover

- Water availability is measured using appropriate weather resource data, such as precipitation in the catchment area of the buyer’s exposure, from an agreed third-party source.

- Flow rate data for the hydropower plant, as provided from a verifiable independent source, is taken for the desired period of time to correlate and validate water availability measured by ancillary weather resource data, such as precipitation.

- This value is translated into deemed energy output figures based on the hydropower plant’s turbine efficiency.

- The plant’s modelled annual energy yield is the sum of the daily energy yield figures.

- The modelled annual turnover of a hydropower plant is calculated by multiplying the modelled annual energy yield with a factor reflecting the feed-in tariff or a negotiated price per MWh.

- The index trigger determines when payment to the insured is due. This is the case if deemed generation calculated for the cover period falls below the given threshold, for example 95% of its historical average, as a result of reduced water levels or flow rate.

- The two blue lines indicate the range which would be covered by a lack of water policy.

If the turnover falls short, the cover provides financial protection