Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

Promoting Solar Energy in Brazil and Chile

Brazil and Chile have huge renewable energy (RE) resources. In recent years, the costs of relevant technologies have experienced a significant decline.

Brazil's electricity supply is based on large hydropower plants. In recent years, however, the national water reservoirs have reached historically low levels. The compensation of the energy bottlenecks has raised electricity bills. At the same time, the Brazilian energy demand has grown substantially. To accelerate the transition towards low-carbon and climate-resilient development, the Brazilian government intends to diversify the energy mix with more RE sources like solar PV. This will further help to reduce Brazil's vulnerability to fluctuating rainfall patterns, while safeguarding environmental protection standards. Through the International Climate Initiative (IKI), the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) has been working with Brazil towards this goal for many years.

In Chile, the energy sector (including transport) represents the main source of CO2 emissions. However, Chile has assumed a proactive role in mitigating greenhouse gas (GHG) emissions. The potential for mitigation actions, particularly those incorporating RE systems, is therefore significant. Since 2008, the Chilean Government has assigned the highest priority to the rapid expansion of non-conventional RE. Within the context of the IKI, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), on behalf of BMUB, has been supporting the Chilean Government in improving the sustainability of the energy sector in Chile since 2008.

Solar pilot project Megawatt Solar Brazil

This IKI project facilitated the deployment of solar power through a combination of technical and financial cooperation. With a BMUB grant amounting to EUR 3.7 million, GIZ and KfW Development Bank supported the construction of an innovative solar PV plant and enabled Brazilian agencies to draft an incentive-based net metering regulation in order to stimulate the rapid growth of decentralised small-scale solar power solutions.

While KfW provided co-financing to fund a feasibility study for the PV plant, GIZ offered advice on technical issues, cooperating with the Brazilian Electricity Regulatory Agency (ANEEL) and Instituto Ideal – a non-profit institution. Activities included the development of commercialisation options of solar energy, knowledge exchange and the dissemination of information to facilitate decision-making processes.

After a tendering process, the first Brazilian, grid-connected PV plant integrated into a public building was put into operation on the roof and on the parking lots of the energy company Eletrobras Eletrosul in Florianópolis in 2014. For marketing purposes, GIZ and the Instituto Ideal created the solar label "Selo Solar" with support of the Brazilian Chamber of Electric Energy Commercialization (CCEE). Through this pilot project, the parties involved were able to gain experience in feeding solar power into the low- and medium-voltage grid on basis of the net metering regulation, which entered into force in 2012. The website América do Sol

offers information on how to benefit under the net metering scheme. The website includes a free solar simulator tool and annual reports on Brazil's PV market development. Please visit: www.americadosol.org. The rapid growth of the number of net metering plants shows that these activities visibly strengthened the Brazilian PV market.

Expansion strategies for grid-connected renewable energies in Chile

This IKI project supported the Chilean Government in drafting medium and long-term expansion strategies for grid-connected RE. Based on meteorological models, geographic information diverse scenarios were analized, meeting economic criteria, supply security and environmental sustainability. It was the most complete analysis of Chile's electricity sector so far. The methodologies developed by this IKI project have formed the foundation for medium and long-term energy planning and expansion of the power system in Chile.

Solar energy for electricity and heat generation in Chile

This IKI project aims to promote the generation of electricity through PV systems and the production of heat via solar thermal applications (SWH) and thus to facilitate self-supply for commercial entities, industrial plants or public buildings. The project develops strategies and assists the Chilean authorities in improving the political and regulatory framework for solar energy, developing innovative business models and increasing local competitiveness in the creation of new markets for solar technologies. Local expertise is being fostered through the training of future developers and installers in selected educational institutions. The project also supports a nationwide dissemination programme on PV systems for public buildings conducted by the Chilean Ministry of Energy.

Support of Solar Energy focused on large solar plants CSP and PV

This project promotes the development of large-scale solar energy applications and identifies methodologies capable of improving grid integration of variable RE sources. The focus is on electricity generation by PV and concentrated

solar power (CSP/CST) plants. With the share of fluctuating RE in the Chilean grid expected to increase, the grid operators need to be prepared to manage these challenges. Project activities include capacity building and training, technology transfer, identification and analysis of innovative solar energy applications and the dissemination of the results and experiences gained in Chile at international level. It also supports the efforts of the Chilean Government to launch a national strategy for establishing a strong solar industry and promoting the sustainable development of projects including a solar roadmap as part of the national steering committee. A financing component funded by KfW supports the first Latin American CSP plant.

NAMA Support Project Self-Supply Renewable Energy in Chile (SSRE)

The aim of this project is to promote the integration of non-conventional RE for self-consumption into the Chilean energy supply system as a nationally appropriate mitigation action (NAMA). The main partner for this project is the National Innovation Centre for Renewable Energy (CIFES). The activities focus on the creation of technical capacity to accelerate market development in Chile. The project intents to minimise barriers and encourage the development of a new industrial sector by improving technical and financial conditions. With a financing line provided by KfW, feasible projects will be funded and supported in their implementation. A guarantee fund will also be set up in order to mitigate the risks associated with the financing of innovative projects. The funds for the NAMA support project are provided by Great Britain's Department of Energy & Climate Change (DECC) and BMUB.

Imprint
Published by: Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Division KI II7 · 11055 Berlin
E-Mail: KIII7@bmub.bund.de · Internet: www.bmub.bund.de/en/
Design: MediaCompany – Agentur für Kommunikation GmbH
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Date: August 2017