



Federal Ministry
for Economic Affairs
and Climate Action

Energy and climate partnerships and energy dialogues

2022 annual report



Imprint**Publisher**

Federal Ministry for Economic Affairs and Climate Action (BMWK)
Public Relations
11019 Berlin
www.bmwk.de

Current as of

March 2023

This publication is available for download only.

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Design

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Image credits

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Preface



Dear reader,

the past year has shown us how quickly the pillars of our freedom and security can be shaken. Putin's illegal war of aggression has brought immeasurable suffering to the people of Ukraine. And we too in Germany can no longer blindly rely on the structures we have long believed to be secure. The loss of gas imports from Russia has led to an unprecedented energy crisis in Europe. We are experiencing a turning point in time at which we are having to reorient ourselves.

Thanks to our international partners, we were quickly able to set up alternative supply routes and have rushed to build up new energy infrastructure that enables us to use them. We managed to avert the worst, ensure our security of supply and also provide significant support to Ukraine.

Following the stabilisation of the energy situation and the decline in gas prices, we can once again place a greater focus on the structural policy tasks at hand. These include the consistent expansion of renewable energy, which is the ultimate pathway towards achieving our climate goals and also helps us reduce our dependence on fossil fuels. Hydrogen, in particular, is able to be produced virtually worldwide. By embracing this energy source more and more, we can diversify our imports of sustainable energy to the greatest extent possible. The freedom to do so is not only a key asset of the energy transition, but will also help us ensure global energy security going forward.

Alongside climate action and the green transformation, building sustainable supply chains is also one of the main goals of our 29 energy partnerships and dialogues. In 2022, we concluded six new cooperation agreements with Egypt, Israel, Namibia, Qatar, the USA and Vietnam, and are currently engaged in advanced discussions

with more countries. To speed up efforts towards meeting our ambitious goals internationally, we have also launched our own climate partnerships in addition to the projects being undertaken under our International Climate Initiative. Key examples of intensified cooperation include a climate and energy partnership with the USA, as well as expanding our existing energy partnership with the United Arab Emirates into a climate and energy partnership. We have also established multilateral, interministerial Just Energy Transition Partnerships (JETPs) with South Africa, Vietnam and Indonesia in order to strengthen our joint international efforts towards achieving climate neutrality.

A great deal is happening across our energy, climate and hydrogen partnerships, which are facilitating a lively and effective exchange between governments, science, business and civil society. This dialogue on energy efficiency, the resilience of critical infrastructure, the expansion and integration of renewable energy, and socio-ecological transformation is the basis for all cooperation in the energy industry and is a key instrument for us as we work to realise the global energy transition. Especially in these times of continued crisis, we rely on having dependable partners at our side who work with us to achieve climate neutrality. Such joint cooperation is the only way we can succeed in mastering the global challenges of our time.

A handwritten signature in blue ink that reads "Robert Habeck". The signature is fluid and cursive.

Dr Robert Habeck
Federal Minister for Economic Affairs
and Climate Action

A future of strong partnerships

The year 2022 changed the world. In times of global challenges, it serves as a reminder of the necessity of reliable partnerships. These are also needed for the global transformation of energy systems. For the Federal Government, bilateral energy and climate partnerships and energy dialogues are key instruments on the path towards a global energy transition and in global efforts to mitigate climate change.

Addressing the challenges posed by climate change and global crises is an international task. It is a responsibility that will take nothing less than a turning point in energy policy. More specifically, this will mean implementing a sustainable, economically attractive and secure energy transition. Whether it is forging a climate-neutral economy or ensuring security of supply through climate-neutral energy carriers, international cooperation will prove increasingly important.

Exchange and knowledge sharing

Bilateral energy and climate partnerships and energy dialogues facilitate cooperation on energy policy. They help to build international networks, share knowledge and launch joint projects. After two years of the Covid-19 pandemic, stakeholders once again met in person in 2022. International large-scale events provided spaces for exchanging ideas, including bilateral discussions and delegation visits. Whether digital or analogue, partnerships create space for the transfer of knowledge – for instance, via workshops and study visits. This encourages discourse and dialogue around the practical implementation of the energy transition and enables new partnerships to be forged.

New partnerships and a growing network

Many new partnerships were formed in 2022: one energy partnership with Israel and another with Qatar, and an energy dialogue was initiated with Vietnam. Hydrogen partnerships have developed with Egypt, Namibia, Canada and Saudi Arabia. We also established our first energy and climate partnership with the United States and added to our energy partnership with the United Arab Emirates by setting up a climate partnership. Since 2006 we have thus built up a valuable network, which has grown significantly. It now connects Germany with almost 30 countries worldwide, and is helping us to make progress on climate change mitigation and the energy transition.

It is also true, however, that the past year saw previous certainties turned upside-down, with a number of old partnerships being terminated. In the wake of Russia's war of aggression against Ukraine, the Federal Ministry for Economic Affairs and Climate Action suspended its cooperation with

the Russian government within the framework of the German-Russian Energy Dialogue. Bilateral energy cooperation with the Iranian government has also been suspended since the end of 2022. The energy partnership with Ukraine was therefore used to provide significant support measures in energy infrastructure.

Empowering women in the energy transition

When it comes to the successful realisation of the energy transition, the promotion of women has proven an important issue. This is because women energy experts continue to be underrepresented in the energy sector, especially in technical professions and leading positions. There is also a global shortage of skilled workers to manage the energy transition. This means that in order to achieve an inclusive and just energy transition, women need to be more strongly involved. The energy partnerships have a part to play here. They increase the visibility of committed female energy experts, create possibilities for them to build international networks and bolster their expertise and visibility through mentoring programmes and events.

Last year was marked by constant change. What is left, however, is the certainty that we can only succeed by working together. Here, the energy and climate partnerships and dialogues are a fantastic testament to the potential of trusting cooperation and the transfer of knowledge. The various activities being pursued as part of the bilateral cooperation with the Federal Ministry for Economic Affairs and Climate Action are presented on the following pages.

Facts and figures 2022

2 newly established energy partnerships (Israel, Qatar)

1 newly established energy dialogue (Vietnam)

3 newly established hydrogen partnerships (Egypt, Namibia, Saudi Arabia)

2 existing energy partnerships expanded to an energy and climate partnerships (United States of America, United Arab Emirates)

1 existing energy partnership expanded to include a hydrogen alliance (Canada)

Formats for bilateral cooperation

Energy and climate partnerships:

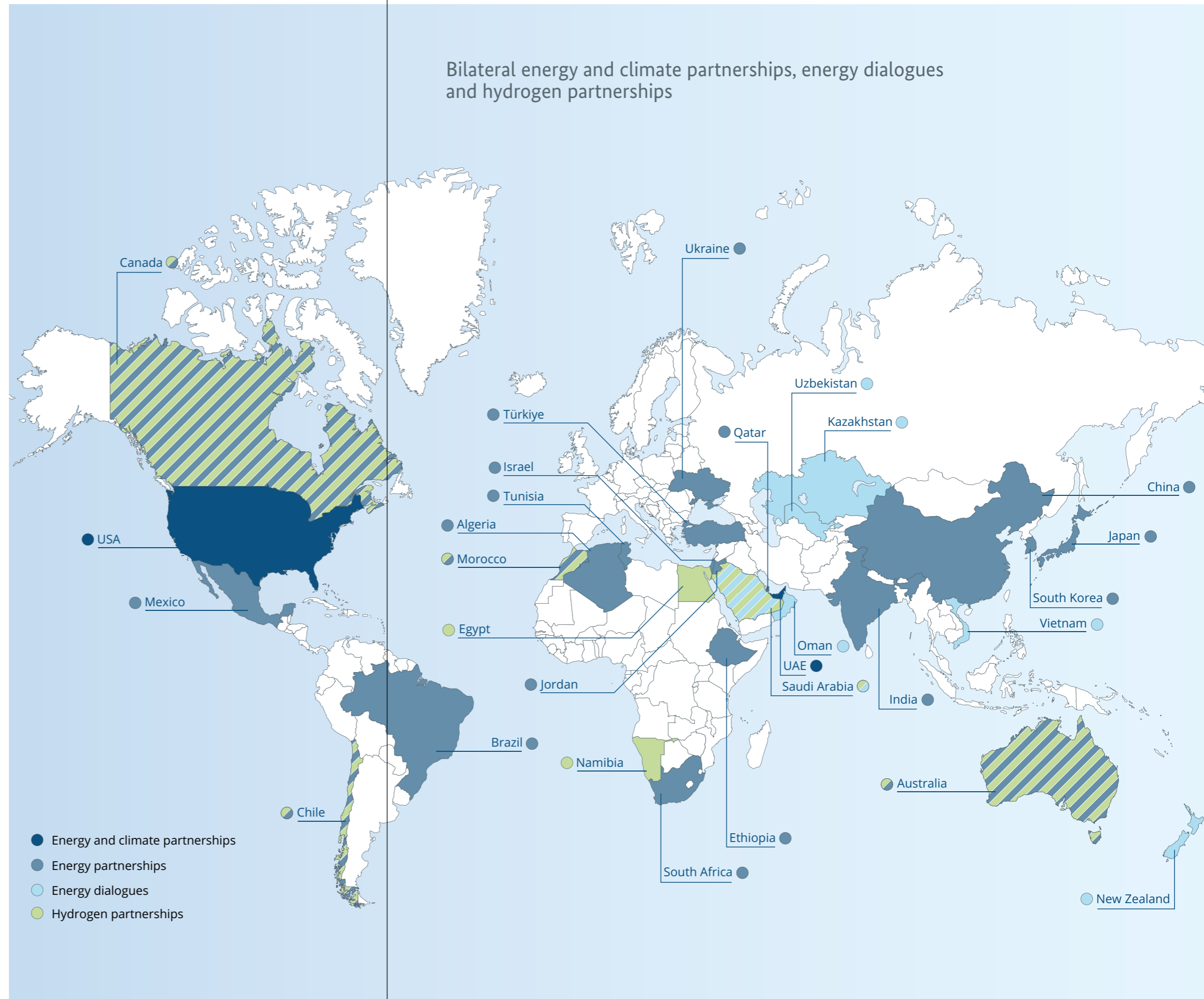
Within the framework of an energy and climate partnership, Germany works with a partner country on a range of energy, climate and economic topics. Key areas include the expansion of renewable energy and its integration into the system, increasing energy efficiency, the integration of joint climate instruments such as carbon pricing and navigating the ecological and social dimensions of this transition. The focus of cooperation is also increasingly on energy security. Partnerships are based on a signed declaration of intent.

Energy dialogues:

An energy dialogue is the preliminary stage of a climate and energy partnership. It fundamentally pursues the same objectives as climate and energy partnerships, but is not based on a formal declaration of intent and features no formal structures.

Hydrogen partnerships:

Germany collaborates with a growing number of countries to accelerate the expansion of green hydrogen. While many hydrogen partnerships are being implemented within the framework of existing climate and energy partnerships, the Federal Ministry for Economic Affairs and Climate Action enters into specific hydrogen partnerships with strategic exporting and importing countries. Like the energy and climate partnerships, this joint work is based on a signed declaration of intent.



German-Algerian cooperation on hydrogen moves forward

Support for a major solar tender, high-level talks on gas supplies and the signing of an agreement between major companies on techno-scientific cooperation in green hydrogen were among of the highlights of last's year German-Algerian Energy Partnership.

2022 got off to a promising start for the expansion of renewable energies in Algeria. The Ministry of Energy Transition and Renewable Energies issued a tender for five solar power plants with a total capacity of 1000 MW. Advisory services were provided to help with the specifications under the umbrella of the German-Algerian Energy Partnership in cooperation with KfW Development Bank. This tender is the first to be issued as part of a fifteen-year programme aimed at installing a total of 15,000 MW of renewable energy capacity by 2035, preferably based on photovoltaics.

In connection with this plan, a cooperation was also launched between the German Solar Industry Association (BSW) and the Algerian Renewable Energy Company (SHAEMS). Founded in November 2021, SHAEMS is the state-owned Algerian company responsible for solar power tendering and implementation. With the support of BSW, the

German solar industry was provided with market information on the Algerian solar programme, B2B talks were organised, and a delegation made a trip to the international trade fair, Intersolar, in Munich in May 2022, which included an information event opened by the Algerian ambassador to Germany.



Interministerial Algerian Delegation at a future hydrogen cavern, VNG Bad Lauchstädt Energy Park (October 2022)



Delegation trip to German energy company VNG with representatives of the Algerian Ministry for Energy and Mines and Sonatrach, Leipzig (October 2022)

Hydrogen agreement signed

In March 2022, as part of the German-Algerian cooperation, Federal Minister Dr Robert Habeck received a delegation led by Algerian Energy Minister Ben Attou Ziane in Berlin. One outcome of this was the start of top-level talks on possible natural gas supplies to Germany between the state energy producer Sonatrach and three German gas trading companies – RWE, UNIPER and VNG. In addition to these natural gas discussions, an intensive dialogue on green hydrogen developed between VNG and

Sonatrach. In October, an Algerian delegation visited two real-world laboratories of the hydrogen economy in Saxony and discussed the production, transport and storage of hydrogen with VNG, the Fraunhofer Institute, the Technical University Freiberg and others. And in December, at the 4th German-Algerian Energy Day in Algiers, VNG and Sonatrach signed a declaration of intent on technical and scientific cooperation in the field of sustainably produced hydrogen, in the presence of the Algerian Energy Minister Mohamed Arkab and German Deputy Minister Dr Franziska Brantner (BMWK).

FEB

Training on grid integration with "l'Opérateur du Système électrique" (OS), Algerian TSO

MAR

Dialogue at ministerial level

Local business council with German companies and AHK in Algeria

JUN

Top management B2B event between Sonatrach and German gas trading companies

Assessment of tender for small photovoltaic installations issued by Algerian regulatory body (CREG)

DEC

4th German-Algerian Energy Day in Algiers

Partner ministry: Ministry of Energy and Mines

Office headquarters: Algiers

Year of establishment: 2015

Focus on:

- Renewable energies
- Energy efficiency
- Green hydrogen



Dr Frank Renken
Head of Secretariat,
Deutsche Gesellschaft für
Internationale Zusammenarbeit
(GIZ) GmbH

Hydrogen and energy efficiency become focus of cooperation

2022 was marked by the global energy crisis and the election of a new Australian Government, which advanced the energy transition in both countries. Cooperation within the Energy Partnership focused on hydrogen and energy efficiency. The governments took maximum advantage of the opportunity to meet in person again, with several delegation trips taking place.

The Russian war in Ukraine, along with the resulting energy crisis, was one of the defining features of 2022, impacting on bilateral conversations, delegation trips and virtual formats. Another important change was the election of a new Australian government, which assumed power in May and used the remaining months of the year to steer the country's climate and energy policy in a more ambitious direction. These developments led to an acceleration of the energy transition in both countries, which sometimes reduced the bandwidth for bilateral cooperation, but at the same time stimulated and increased the ambition of the activities implemented.

Strong momentum for hydrogen

Hydrogen remains a key priority for the bilateral cooperation, with discussions regarding the implementation of the Australia-Germany Hydrogen Accord still ongoing. The first Governmental Task Force Meeting for the Accord took place face-to-

face in Adelaide, with the German contribution jointly chaired by the German Federal Ministry for Economic Affairs and Climate Action (BMWK) and the Federal Ministry for Research and Education (BMBF). BMWK also attended the Australian Hydrogen Conference and co-chaired the fifth meeting of the Energy Working Group.

The sub-working group continued to support cooperation with industry. New formats for connecting stakeholders on both sides of the globe were trialled, with the "Month of Engagement" networking series in October receiving positive feedback.

Energy efficiency cooperation is thriving

The industry-led sub-working group on energy efficiency continued their cooperation, publishing several reports to illustrate best practices in the built environment in Australia and Germany. A particular highlight was the trip by a delegation of Australian experts and thought leaders to Berlin



German and Australian stakeholders visit the Siemens electrolyser in Adelaide (June 2022)

in June. Following the departure of the German Co-Chair in the middle of the year, German industry is now represented by the German Industry Initiative for Energy Efficiency (DENEFF).

Renewable expansion gaining speed

Questions about the expansion and integration of renewables, and power system security were also important topics in 2022. An Australian delegation travelled to Germany to learn about the energy transition in the power sector and to exchange ideas. Several areas for future dialogue were identified, providing opportunities for experts from the two partner countries to learn from each other.



Australian experts visit EUREF Campus during a delegation trip to Germany (June 2022)



Partner ministry: Department of Climate Change, Energy, the Environment and Water
Office headquarters: Sydney
Year of establishment: 2017

- Focus on:**
- Hydrogen
 - Energy efficiency
 - Renewable energy



Franziska Teichmann
 Head of the German Secretariat for the Energy Cooperation with Australia and New Zealand, adelphi consult GmbH



Brazil: great potential to become a leader in green energy transformation

Brazil has the potential to become the regional leader for a green energy transformation, as well as a major producer of green hydrogen, green derivatives and other green products along the supply chain. Energy security remains one of the major challenges. The Energy Partnership is intensifying political dialogue on renewables, energy efficiency and hydrogen, and promoting cooperation with the private sector.

The Energy Partnership supported the political dialogue with the Brazilian Ministry of Mines and Energy and continued to promote its dialogues with the private sector. After years in which the focus had been solely on technical cooperation and studies, the election victory of Luiz Inacio Lula da Silva in October 2022 enabled preparations for resuming the close cooperation between Germany and Brazil with the aim of achieving a green and socially just transformation of society.

Given that the Brazilian energy matrix is already relatively strong in renewables, the country needs to make overall progress in the energy transition, in energy consumption as well as energy consumption. To support this transformation, the Energy Partnership conducted studies on criteria and procedures for expanding the transmission system, and on the technical, economic and market potential of demand response in the Brazilian industrial sector.

Industry is the most intensely energy-consuming sector in Brazil

In response to the industrial sector's high consumption levels, the Energy Partnership, together with the Bilateral Chamber of Commerce in São Paulo, began distributing information about Learning Energy Efficiency Networks. The pilot São Paulo Industry Network, for example, saved almost 30 GWh in 2022.

In December 2022, the 4th edition of the German-Brazilian Business Council in São Paulo tackled industry-specific challenges in the ramp-up of the market for green hydrogen, such as the expansion of infrastructure.

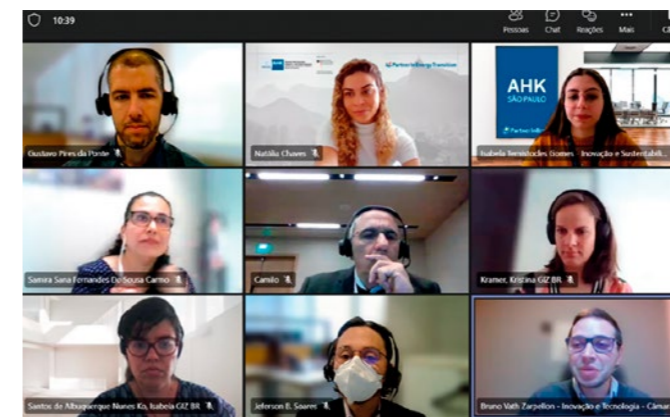
International cooperation represents one of the thematic axes of the Brazilian National Hydrogen Program (initiated in 2021). With the aim of stimulating increased participation of other clean sources



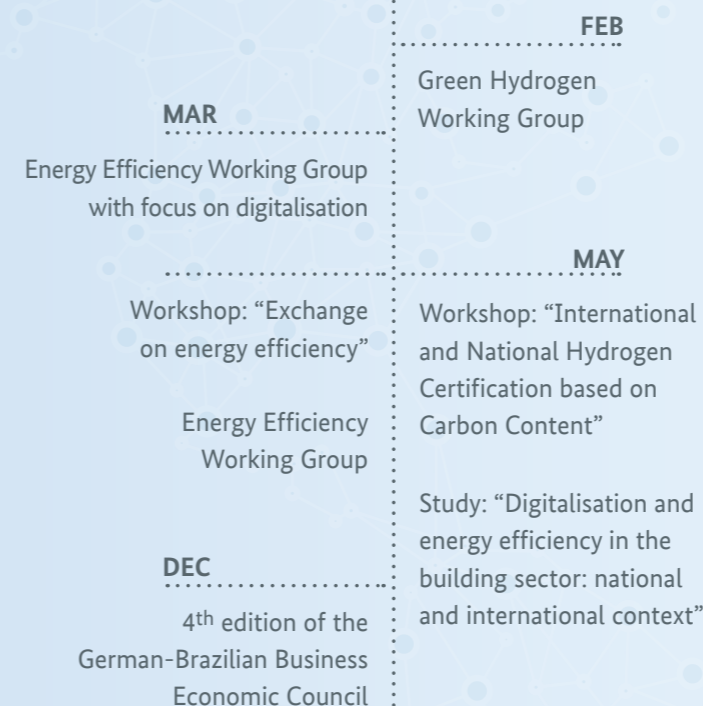
4th German-Brazilian Business Council in São Paulo (December 2022)

and making Brazil a strategic and political partner in green hydrogen production, the Energy Partnership established three task forces (production, logistics and application) within the framework of the Green Hydrogen Working Group, in order to share information about questions regarding hydrogen and recommendations for political dialogue.

The energy transition encompasses not just low-carbon energy generation and consumption but also the optimisation and utilisation of goods and services. The Partnership published a study on this topic that stimulates discussion on the use of digital technologies in all stages of the life cycle of buildings. The outlook is promising: assuming rapid digitalisation of the building sector, the potential for energy efficiency would reach around 30% to 40% of 161 TWh by 2050.



Green Hydrogen Task Force meeting with representatives from the Ministry of Mines and Energy, Energy Research Office and the German Chamber of Commerce (August 2022)



Partner ministry: Ministry of Mines and Energy, Ministry of Foreign Affairs
Office headquarters: Brasilia
Year of establishment: 2017
Focus on:

- Renewable energies
- Energy efficiency
- Green hydrogen
- Energy efficiency networks
- Digitalisation
- Transmission grid planning
- Demand response



Kristina Kramer
 Head of the German-Brazilian Energy Partnership, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Laying the groundwork for transatlantic hydrogen cooperation

Against the backdrop of an unprovoked war of conquest in Europe and the resulting global energy crisis, the establishment of the Canada-Germany Hydrogen Alliance gave increased momentum to transatlantic action on hydrogen and renewable energy development. Next step: moving from planning to implementation.

Success stories of 2022

The highlight of the year was a three-day visit to Canada by German Chancellor Olaf Scholz and Vice-Chancellor Robert Habeck in late August 2022. On their last day, they visited the Canada-Germany Atlantic Renewable Hydrogen Expo in Stephenville, Newfoundland and Labrador – co-hosted and organised through the Energy Partnership – which enabled green hydrogen producers and indigenous groups in Atlantic Canada to meet potential German off-takers and technology providers. At the Expo, Minister Habeck and his Canadian counterpart, Natural Resources Canada Minister Jonathan Wilkinson, signed a Joint Declaration of Intent in order to establish the Canada-Germany Hydrogen Alliance. The Alliance aims to deepen transatlantic hydrogen cooperation and has set a target date of 2025 for the first shipments of hydrogen derivatives from Canada to Germany.

The signing ceremony was accompanied by a Memorandum of Understanding supporting the implementation of the Hydrogen Alliance, approved by all four Premiers of Atlantic Canada. In addition, several private-sector agreements were announced in conjunction with the Expo. In the months following this high-level visit, work on transatlantic hydrogen cooperation intensified, expanding the involvement of Canada's Atlantic provinces and creating connections between Canadian and German ports. Several cooperation agreements were signed, including one between Newfoundland and Labrador and the City of Hamburg, and another between the ports of Hamburg, Wilhelmshaven, Halifax and Belledune.



Signing ceremony of the Canada-Germany Hydrogen Alliance in Stephenville, Newfoundland and Labrador (August 2022)

Implementing the Hydrogen Alliance and advancing other cooperation topics

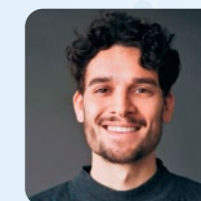
In 2023, the Energy Partnership's focus will be on implementing the Hydrogen Alliance, which will help developers and investors to realise the renewable hydrogen cooperation projects that have been announced. Furthermore, bilateral cooperation on other energy transition topics, including minerals

security for the energy transition, renewable energy deployment and advancing just transitions, is expected to intensify this year. Just as they did in 2022, the Energy Partnership's partners – the German Federal Ministry for Economic Affairs and Climate Action (BMWK), Natural Resources Canada, the various foreign missions and the Energy Partnership's Secretariat – will work closely together to advance these topics.



Partner ministry: Natural Resources Canada
Office headquarters: Berlin, Montreal, Toronto
Year of establishment: 2021

- Focus on:**
- Hydrogen
 - Energy security
 - Minerals security for the energy transition
 - Just transition



Jens Honnen
Head of Secretariat (Berlin), adelphi consult GmbH

Chile: still the innovative pioneer for energy transition in Latin America

The Energy Partnership is supporting Chile's journey towards climate neutrality by 2050. An ambitious coal phase-out plan and a just transition to 80% renewables by 2030 are being supported by energy efficiency legislation, flexibilisation of the power grid and a climate change law. The National Green Hydrogen Strategy is aiming to achieve both local value creation and export.

Progressive energy agenda

Since 2014, Chile has been pursuing a long-term national energy strategy for the energy transition. In May 2022, the Climate Change Framework Law was passed, making climate neutrality by 2050 mandatory.

Chile has a huge potential for all renewables, mainly due to the very high direct solar radiation in the north and constant strong winds in the south. In 2022, about 51% of gross electricity generation came from renewables – with PV and wind contributing 28%, compared to coal at 24%. This increase is crucial for Chile, since electricity generation from large hydroelectric plants is declining sharply due to long periods of drought.

The current Energy Agenda 2022–2026 affirms the chosen strategy of expanding renewable energy, increasing energy efficiency and phasing out coal

(‘Just Transition’). There are plans to promote research in the energy sector more vigorously. The Energy Partnership supports these areas of activity. During COP27 in Egypt, Minister Padow participated in a side event on "Repurposing Coal-fired Power Plants into Renewable Energy Storage", organised by the Energy Partnership.

Innovative task forces for climate neutrality and green hydrogen

In 2021, a task force was established for green hydrogen. The Energy Partnership and other projects funded by the Federal Ministry for Economic Affairs and Climate Action (BWMK) work in close cooperation to support green hydrogen, which the German Association for International Cooperation (GIZ) is implementing in Chile. At the last steering committee meeting in November 2022, both sides confirmed that the green hydrogen task force



Chilean and Uruguayan energy experts visit the “WindEnergy Hamburg” fair during a study tour to Germany (September 2022)

would continue to exist. Moreover, State Secretary Dr Patrick Graichen and Minister Diego Pardow agreed to found a new task force, “Climate Neutrality 2050 and Mitigation in the Energy Sector”.

In June 2022, a German political delegation visited Chile. It was led by Parliamentary State Secretary Dr Franziska Brantner, who was accompanied by company representatives from the mining and

energy sectors. In the course of this visit, the third Local Business Council with German companies was held at the German Embassy. BWMK and H2Global also held a high-level event at the Embassy dedicated to international funding instruments for hydrogen projects. More than 50 green hydrogen/derivates projects are already being planned or implemented In Chile.



Partner ministry: Chilean Ministry of Energy
Office headquarters: Santiago de Chile
Year of establishment: 2019

- Focus on:**
- Carbon-neutral innovations
 - Energy efficiency
 - Coal phase-out
 - Expansion of renewables energies



Daina Neddemeyer
Head of the Energy Partnership Chile-Alemania, Deutsche Gesellschaft für internationale Zusammenarbeit (GIZ) GmbH

Joint effort towards climate goals while securing energy supply

China's energy sector is pressing for a transition away from fossil energy in order to meet climate targets while also securing supplies. The Energy Partnership is deepening the political dialogue on renewable integration, energy efficiency and sector coupling.

Two years after its September 2020 pledge to reach carbon neutrality by 2060 and a peak of CO2 emissions before 2030, China has refined its roadmaps and policies to meet these targets. Besides other goals, the 14th Five-Year Plan (2021-2025) envisages an 18% reduction in CO2 emissions per GDP compared to 2020 levels. The share of non-fossil fuels in power generation is expected to increase to 39% by 2025. In 2021 and 2022, meanwhile, power shortages in multiple Chinese provinces – the result of extreme weather and rising energy prices due to the Russian war of aggression against Ukraine – have triggered energy security concerns. Implementing a rapid low-carbon transition while maintaining security of supply poses a major challenge for coal-reliant China.

Renewable integration and energy efficiency at heart of dialogue

In 2022, the Energy Partnership continued to play an active role in supporting China's energy transi-

tion – despite ongoing restrictions related to Covid-19. A wide range of political and technical exchanges on power market design, grid flexibility and security, decentralised renewable energy, green hydrogen and sector coupling helped to map out China's path to decarbonisation and accelerate progress, while at the same time providing German stakeholders with important information on developments in China.

Aiming to achieve increased efficiency and lower emissions, the Energy Partnership showcases best practices in the Sino-German cooperation. The pilot project on energy efficiency in industry concluded its second phase with a set of energy efficiency guidelines for the cement, ceramics, paper and glass fibre industries and for airports. An initial energy concept will support a pilot economic development zone aimed at achieving climate-neutrality. The Sino-German Energy Efficiency Network (EEN) pilot, based on German experience, demonstrated that the EEN can be an innovative instrument for energy saving in China.

NEA delegation to Berlin and new heating standard are 2022 highlights

A particular highlight of 2022 was the first visit by a high-level delegation of the Chinese National Energy Administration (NEA) to Germany since the outbreak of Covid-19. During the two-day visit to the Federal Ministry for Economic Affairs and Climate Action (BMWK) at the end of October, German and Chinese experts exchanged views on power market reform and integrating renewables into the power sector.

By showcasing or promoting German standards and best practices, the Energy Partnership is improving the business environment for green development in China. For instance, the Partnership has supported dialogue on testing standards for the energy efficiency of heating solutions, with the result that China has adopted a standard incorporating European best practices. This promotes the market development of low-carbon heating solutions like heat pumps and also benefits German/European businesses active in China.



Mr. Dr Patrick Graichen, State Secretary at BMWK, meets Mr. Huang Xuenong, General Supervisor of NEA, in Berlin (October 2022)

	JAN
	7th annual meeting of the Sino-German Working Group on energy efficiency
APR	10th annual meeting of the Sino-German Working Group on energy
AUG	Workshop on Sino-German energy policies, laws and mechanisms in supporting energy transition
NOV	Final workshop on Sino-German Demonstration Project on Energy Efficiency in Industry
	MAY
	BETD side events on capacity adequacy, flexibility and e-mobility, renewable integration
	OCT
	High-level delegation of China's National Energy Administration visited BMWK in Berlin

Partner ministry: The National Development and Reform Commission, The National Energy Administration
Office headquarters: Beijing
Year of establishment: 2007
Focus on:

- Energy efficiency in industry and cities
- Renewable energy
- Power market reform
- Flexibility
- Sector coupling
- Heating transition



Yuxia Yin
Head of Secretariat,
Deutsche Gesellschaft für
Internationale Zusammenarbeit
(GIZ) GmbH

German-Egyptian cooperation on hydrogen and energy ready to go

By signing two Joint Declarations, both countries have emphasised their ambition to curb climate change and develop a secure, affordable energy supply from climate-friendly sources. The declarations therefore mark the beginning of a structured dialogue to intensify cooperation on energy and green hydrogen.

In a virtual ceremony, Dr Robert Habeck, Federal Minister for Economic Affairs and Climate Action (BMWK) and Jochen Flasbarth, State Secretary at the Federal Ministry for Economic Cooperation and Development (BMZ) signed two Declarations of Intent with three ministers from Egypt. Their goal: to intensify German cooperation with Egypt on the production of green hydrogen and trading in liquefied natural gas (LNG). The signatories on the Egyptian side were H.E. Tarek El Molla, Minister for Petroleum and Mineral Resources, H.E. Dr Mohamed Shaker El-Markabi, Minister for Electricity and Renewable Energy, and H.E. Dr Rania Al-Mashat, Minister for International Cooperation.

According to Dr Habeck, this partnership sends a clear signal that Germany is helping Egypt to place its energy supply on a new footing and accelerate the transition from fossil fuels to climate-friendly

energy sources. These include not only green hydrogen but also liquefied natural gas (LNG), in order to further diversify Germany's energy imports in the short term.

Green hydrogen for climate-neutral energy supply

The agreement aims at closer cooperation between politics, business and science. It is crucial that infrastructure projects and joint investments be designed so that fossil natural gas can be replaced by green hydrogen as quickly as possible, thereby contributing to a climate-neutral energy supply in the short to medium term. In specific terms, the joint Declaration of Intent encompasses mutual exchange of knowledge and technological expertise, implementation of specific projects relat-



Virtual signing ceremony for declarations between Germany and Egypt agreeing to collaborate more closely on establishing of a climate-neutral energy supply (November 2022)

ed to the production, processing, use and transport of green hydrogen, development of a green hydrogen sector and promotion of joint investment, and research and implementation projects related to hydrogen and its processing, transport and use.

In view of the current energy crisis, a second declaration was signed to improve cooperation in energy trading between the governments and commercial sectors of both countries, especially regarding the supply of LNG.

NOV

Second declaration signed to improve cooperation in energy trading between the governments and commercial sectors

Partner ministry: Ministry of Electricity and Renewable Energy Ministry of Petroleum and Mineral Resources

Office headquarters: Cairo

Year of establishment: Not yet established

Focus on:

- Renewable energies
- Hydrogen



Benjamin Schober
Advisor,
Deutsche Gesellschaft für
Internationale Zusammenarbeit
(GIZ) GmbH



Promoting energy transition through cooperation and private sector engagement

The Energy Cooperation works closely with the Ethiopian Ministry of Water and Energy to facilitate project-based cooperation and support policy and strategy dialogues aimed at promoting energy transition agendas. Green hydrogen development and private sector promotion were focal areas of engagement, bringing the energy transition and management together.

Ethiopia is in a favourable position geographically to harness water, sun, wind and geothermal energy. Hydropower resources currently account for over 90 percent of electricity generation.

Big Hydropower: training and technical support

This project is piloting the digitalisation of hydropower plants with the state-owned power generation company Ethiopian Electric Power (EEP). It also supplies spare parts for plants and sets up digital maintenance systems to enable long-term and cost-effective use. To increase the operational efficiency of the Gilgel Gibe II hydropower plant (420 MW), the project employed the global technology company Voith Hydro and provided on-site training in EEP engineers' "onCare.Asset" maintenance support system – newly installed through the energy cooperation.

Promoting the use of solar PV

The Addis Ababa city administration, together with the Energy Cooperation, has developed a scalable pilot power generation system for the city administration's bread and perishable foods distribution stations, with a solar PV system of 1.3kWp installed capacity, in order to showcase sustainable, clean energy solutions for business and environmental benefits.

Green hydrogen development

This project supports the Ministry and other authorities on strategic issues, such as positioning in the hydrogen economy and the global dialogue on the energy transition. Together with the German Embassy and the German Federal Foreign Office's

Ethiopian delegates, led by State Minister Dr Sultan Wali, meeting German counterparts at the BETD (March 2022)



Global Hydrogen Diplomacy project, the Energy Cooperation project held a three-day training course on PtX technologies ("power-to-X" = green hydrogen and derivatives) for Ethiopian government experts, policy makers, researchers, and staff of energy-related public and private companies. The accompanying symposium on Green Hydrogen Development explored possible areas of cooperation between Germany and Ethiopia in order to fast-track Ethiopia's green hydrogen development.

Dialogue and ideas exchange: Ethiopia at BETD 2022 and African Energy Forum

The Ethiopian Minister for Water and Energy, H.E. Dr Habtamu Itefa, shared the Ethiopian perspective on energy access as a panelist at the Berlin Energy Transition Dialogue 2022. Similarly, H.E. Dr Sultan Wali, State Minister at the Ministry of Water and Energy, shared his insights on the topic of scaling up investments and partnerships for renewable energy in Africa during the 15th German-African Energy Forum.



Partner ministry: Ethiopian Ministry of Water and Energy
Office headquarters: Addis Ababa
Year of establishment: 2019
Focus on:

- Energy transition and renewable energy
- Innovation
- Energy efficiency and management



Samson Tolessa
 Head of Secretariat,
 Deutsche Gesellschaft für
 Internationale Zusammenarbeit
 (GIZ) GmbH

India and Germany establish Indo-German Green Hydrogen Task Force

For two decades, India and Germany have maintained a frank and open dialogue on the transformation of their energy systems. Green Hydrogen and Agrivoltaics have become topics of intense common interest.

Indo-German green hydrogen task force

India and Germany share the common goal of decarbonising their economies and supporting the establishment of a global green hydrogen economy. Both sides are convinced that their common goals can be better achieved in a close cooperation that builds on their individual strengths and capacities. This is why, on 2 May 2022, the Union Minister for Power and New and Renewable Energy, Shri Raj Kumar Singh, and the German Minister for Economic Affairs and Climate Action, Dr Robert Habeck, signed a Joint Declaration of Intent for an Indo-German Green Hydrogen Cooperation. In this declaration, both countries agreed to establish an Indo-German Green Hydrogen Task Force in order to deepen their cooperation in the production, utilisation, storage and distribution of green hydrogen by building enabling frameworks for projects, regulations and standards, trade and joint research and development projects. In the Joint Statement of the Sixth India-Germany Inter-Governmental Consultations, the Honourable Prime Minister of India, Shri

Narendra Modi, and his Excellency German Chancellor Olaf Scholz finally agreed that both sides will “(...) develop an Indo-German Green Hydrogen Roadmap based on the inputs by the Indo-German Green Hydrogen Task Force supported by the Indo-German Energy Forum (IGEF)”.



Shri Bhagwanth Khuba, Minister for New and Renewable Energy, visited two AgriPV plants to get a first-hand impression of innovations in the field of agrivoltaics (June 2022)



Prime Minister Shri Narendra Modi and Federal Chancellor Olaf Scholz tasking the IGEF to support implementation of the Indo-German Green Hydrogen Task Force at the 6th India-Germany Inter-Governmental Consultations (May 2022)

Energy transition business roundtable

Representatives of German renewable energy companies and business associations were invited to exchange views on future investment plans with Shri Raj Kumar Singh, Cabinet Minister for Power and New and Renewable Energy, and Dr Patrick Graichen, State Secretary at the German Federal Ministry for Economic Affairs and Climate Action (BMWK) and Co-Chair of the Indo-German Energy Forum. Investments in offshore wind, solar manu-

facturing and green hydrogen production have been identified as the key focal areas of German business interest in the Indian renewable energy market. The “Invest India” Investment promotion agency and the Indo-German Energy Forum organised the roundtable as part of the visit by the Indian Prime Minister, Shri Narendra Modi, to Germany. The activity was part of the H2Uppp program, a joint initiative to support the market ramp-up of green hydrogen in India agreed by the Indian and German governments.

MAR Indian delegation to the BETD	
	APR 9 th Indo-German Energy Forum
JUN High-ranking political delegation to Intersolar Europe	Fact-finding mission on agrivoltaics to Germany and Italy
SEP Indo-German Green Hydrogen Task Force	

Partner ministry: Ministry of Power, Ministry of New and Renewable Energy
Office headquarters: New Delhi and Berlin
Year of establishment: 2006
Focus on:

- Energy efficiency
- Renewable energies
- Green energy grid integration
- Flexibilisation of existing thermal power plants



Tobias Winter
Director IGEF-SO, GIZ



Anil Kumar Bellary
Co-Director IGEF-SO, KfW

Germany and Israel join forces on energy transition

Launched in 2022, the Energy Partnership aims to jointly advance the development of technologies and systems to ensure a sustainable, reliable and affordable energy supply. By promoting innovative approaches and solutions for energy transition, the partnership creates value not only for Israel and Germany but also for the global community.

The Israeli-German Partnership was launched on 23 March, when Karine Elharrar, Israeli Minister of Energy, and Oliver Krischer, Parliamentary State Secretary at the German Federal Ministry of Economic Affairs and Climate Action (BMWK), signed a Joint Declaration of Intent on cooperation in the energy sector. Subsequently, the partner ministries adopted a detailed work programme for 2023 at COP27 in Sharm el Sheik, Egypt, on 11 November 2022: two working groups will address a wide range of issues related to the energy transition, digitalisation and the protection of critical energy infrastructure. Special emphasis will be placed on the development of renewable energies and the associated requirements for grid flexibility and integration, and on the development and uptake of agrivoltaic systems. Other areas of focus include energy efficiency in buildings, hydrogen technologies and the use of gas infrastructure for hydrogen.

Additional topics will be the development of pathways for natural gas export from Israel to Germany and the physical protection of critical (undersea) gas infrastructure. A series of joint workshops, conferences, research studies, delegation trips and related activities are scheduled for 2023 in order to investigate these topics.

Resilience of critical energy infrastructure

As Israel is one of the most important locations for the cybersecurity industry today, the Energy Partnership places special emphasis on the resilience of critical energy infrastructure against cyberattacks. The working group on Digitalisation and Protection of Critical Energy Infrastructure affords important potential for promoting resilience in



Adoption of the Work Programme for 2023 by the Steering Group at the COP27 Meeting, Egypt (November 2022)

both countries. In addition to the Federal Ministry for Economic Affairs and Climate Action (BMWK), the Federal Ministry of the Interior, Building and Community (BMI) chairs the working group on the German side. The Israeli side is represented by the Ministry of Energy and the Israel National Cyber Directorate (INCD), part of the Prime Minister's office.

Technological innovation

The very high density of start-ups in Israel, including those in the field of ClimateTech, has earned the country the title of “start-up nation”. This promises rich potential for the technological innovation needed to foster energy transformation and tackle climate change.

MAR

Signing of the Energy Partnership

NOV

Steering group meeting

Kick-off meeting of Working Group “Digitalisation and protection of critical energy infrastructure”

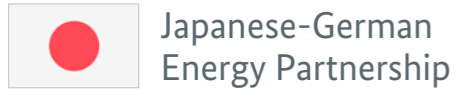
Signing of the Work Programme 2023 at the Israeli Pavilion at COP27

Delegation of the German Energy Agency (dena) to Israel

Partner ministry: Ministry of Energy
Office headquarters: Berlin
Year of establishment: 2022
Focus on:

- Renewable energy
- Energy efficiency
- Hydrogen technologies
- Gas infrastructure
- Digitalisation and protection of critical energy infrastructure

Nikias Wagner
Project Director EP Israel,
Deutsche Energie-Agentur GmbH (dena)
German Energy Agency



Back to Tokyo and Berlin: hybrid exchanges to deepen the cooperation

The easing of the pandemic situation in the partner countries has permitted on-site events again, facilitating in-person dialogue between German and Japanese experts on various energy issues. The partnership was additionally reinforced by a variety of established online discussion formats on various key topics, such as hydrogen, energy security and renewables.

The past year has shown that on-site events remain an important part of the Energy Partnership due to their personal nature and the opportunity for face-to-face dialogue. Two events in particular stood out.

ities on the path to “net zero”. It attracted over 170 on-site and online participants from both countries, enabling German-Japanese networks to be created or deepened.

12th German-Japanese Environment and Energy Dialogue Forum (EEDF)

The first highlight was the 12th German-Japanese Environment and Energy Dialogue Forum (EEDF) in Berlin, jointly hosted by the German Ministry for Economic Affairs and Climate Action (BMWK), the German Ministry for Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and the Japanese New Energy and Industrial Technology Development Organisation (NEDO). The two-day hybrid conference in September focused on the role of cities and municipal-

BMWK delegation trip to Tokyo to talk hydrogen

The second highlight was a delegation trip of the BMWK to the 5th Hydrogen Energy Ministerial in Tokyo. As part of this trip, the 2nd meeting of the Steering Group Committee of the Energy Partnership was held, as well as an informative event for Japanese stakeholders about the “H2Global” funding scheme.



Presentation by Head of Division Christine Falken-Grosser (BMWK) at the event on H2Global funding scheme, Tokyo (September 2022)

Progress in our working groups and additional formats

This year’s meetings of the two working groups on energy transition and hydrogen provided the opportunity for representatives of the ministries and other experts to discuss recent developments in energy policy and associated fields in both countries, reflect upon past activities and results and plan future activities within the energy partnership.

The year also showed that online events have established themselves as additional climate-friendly platforms for meaningful dialogues between the two countries. An online expert workshop was held, specifically dedicated to the topic of hydrogen hubs. Additionally, the topics of energy security, the application possibilities of ammonia and the acceptance of renewable energy in both countries were discussed in the fireplace talk format, in which interested parties from both countries working in science, industry, politics and civil society can participate.



Partner ministry: Ministry of Economy, Trade and Industry
Office headquarters: Berlin (Tokyo branch office)
Year of establishment: 2019
Focus on:

- Renewable energy expansion
- On-and offshore wind energy
- Energy efficiency and conservation
- Innovative energy systems
- Hydrogen and power-to-X



Jana Narita
 Manager,
 adelphi consult GmbH

Dead Sea Declaration accelerates energy transition

The first MENA-Europe Future Energy Dialogue (MEFED) conference met with an overwhelming response, creating a new bridge for cross-Mediterranean partnership. The Dead Sea Declaration has improved the climate protection ambitions of the Middle East and North Africa (MENA) region and accelerated the energy transition.

Jordan has significantly increased its renewable electricity share, achieving 27% in 2022. The country is planning to increase its 2030 renewable energy target to 50%. The Energy Partnership is supporting these ambitious targets by facilitating knowledge transfer, capacity building, peer-to-peer dialogue between German and Jordanian stakeholders and specific projects. Additionally, the Energy Partnership supports the development of Jordan's third National Energy Efficiency Action Plan.

New bridges for partnership

Organised by the German Federal Government and the Jordanian Government, and attended by more than 100 participants, 40 delegations and 20 ministers, the first MENA-Europe Future Energy Dialogue (MEFED) was a landmark event in the deepening of bilateral and inter-regional energy cooperation. MEFED was held under the patronage of His Majesty King Abdullah II and attended by

the highest-level representatives of governments, industry, academia, and civil society, enabling them to share experiences with, and ideas for, a reliable, affordable, and sustainable energy supply.

During the conference, delegates signed the Dead Sea Declaration, which addresses climate protection, the interconnection of energy markets and bi- and multilateral cooperation. Moreover, MEFED provided ample opportunities for bilateral meetings and side events.

German Energy Academy in Jordan

The Energy Partnership has supported the establishment and development of the German Energy Academy (GEA) in Jordan since 2021. Offering certified short-term vocational training, GEA was established to build capacity for current and future energy sector demands. Courses include training in cutting-edge technologies such as renewable energy technology (PV and thermal), energy efficiency,



Ministers at opening ceremony for MENA-Europe Future Energy Dialogue (MEFED), the Dead Sea, Jordan (June 2022)

and advanced flexibility solutions (battery storage). The German-Arab Chamber of Commerce (AHK/DE Egypt) certifies the Academy's programmes according to German Chamber of Commerce and Industry (DIHK) quality standards.

Hydrogen potential in Jordan

The Energy Partnership has carried out an assessment of green hydrogen potential in Jordan. The

results indicated that the highest potential among those found was in the Aqaba region of south-eastern Jordan, with a production potential of above 8,000 tpa/km² and an annual production of 392,500 thousand tonnes per year. The Energy Partnership actively advises and supports the Ministry of Energy and Mineral Resources in their development of a green hydrogen strategy.

MAR Delegation to BETD	
German Energy Academy in Jordan opening ceremony	JUN MENA-Europe future energy dialogue (MEFED)
SEP Second Jordanian-German Energy Business Council	
Energy minister visit to 50Hertz to discuss RE integration	OCT Green hydrogen roadmap for Jordan

Partner ministry: Ministry of Energy and Mineral Resources
Office headquarters: Amman
Year of establishment: 2019
Focus on:

- Expanding the use of renewable energy
- National Energy Efficiency Action Plan
- Hydrogen
- Skilled workforce for the energy transition



Christiana Hageneder
 Head of Secretariat,
 Deutsche Gesellschaft für
 Internationale Zusammenarbeit
 (GIZ) GmbH

Developing the renewable hydrogen market as a new priority

This year, the German-Kazakh Energy Dialogue has given a decisive boost to the development of the hydrogen sector in Kazakhstan while not forgetting its roots in energy efficiency. Kazakhstan is planning to use hydrogen for its domestic market and also considering export opportunities to the European Union.

Hydrogen forms a crucial part of Energy Dialogue activities in Kazakhstan. When made from renewable energies, it can help the Central Asian country achieve the decarbonisation targets to which it has committed itself in the Paris Agreement. At the same time, the green gas can fuel economic growth and stimulate a future-proof trade relationship with Germany and the European Union.

Expanding the stakeholder network for hydrogen market ramp-up

A series of workshops with German and Kazakh stakeholders, hosted by the German-Kazakh Energy Dialogue, focused on the development of solutions for the ramp-up of the hydrogen market, considering exportability, regulations, investment environment and standardisation requirements. The most important outcomes of the consultations were presented at a well-attended, high-profile

conference in Almaty in September 2022 that has helped expand the stakeholder network from both countries.

As a result of the emerging low-carbon development strategy for Kazakhstan, there is also a high level of interest in energy efficiency in various sectors. The energy saving potential in the public sector alone is estimated to be at least 40 per cent, while the industrial sector could save around 2.3 million tonnes of standard fuel per year. Activities in this area have been, and continue to be, a key focus for the Energy Dialogue.

Energy Dialogue promotes concrete measures

This year, the Energy Dialogue – and its Kazakh partners in particular – succeeded in developing a basis for some significant energy efficiency meas-



Prof. Schnichels (BMWK) and Vice-Minister for Energy Nurmaganbetov, Co-Chairs of the Energy Dialogue Working Group, at the Hydrogen Conference in Almaty (September 2022)

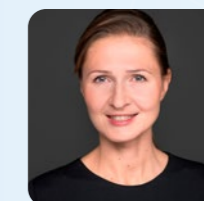
ures, including the launch of energy efficiency networks in Kazakhstan and the implementation of a public information campaign. Concrete, systematic implementation of these measures was discussed with the relevant organisations on the sidelines of the annual International Forum for Energy Saving

in Astana in November 2022, organised – as usual – by dena in collaboration with the United Nations Development Programme (UNDP). The roadmap of initiatives in five sectors which was developed as a result is intended to serve as the basis for the emerging National Concept for Energy Efficiency.

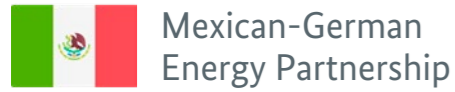
<p>MAY</p> <p>Online workshop: "Use and export potential of hydrogen in Kazakhstan"</p>	<p>MAR</p> <p>Online workshop: "The role of hydrogen in the international discussion and significance for Kazakhstan"</p>
<p>SEP</p> <p>Conference: "German-Kazakh Hydrogen Cooperation: status quo and perspectives", Almaty</p>	<p>AUG</p> <p>Online workshop: "Renewable hydrogen in Kazakhstan: approaches for practical regulation"</p>
	<p>NOV</p> <p>Online conference: "Perspectives of biogas production and utilisation in Kazakhstan"</p>

Partner ministry: Ministry of Energy, Ministry of Industry and Infrastructural Development
Office headquarters: Berlin
Year of establishment: 2011
Focus on:

- Energy efficiency
- Renewable hydrogen market development
- Promotion of biogas production
- Integration of renewable energies into the grid



Elena Metzger
 Project Director ED Central Asia, Deutsche Energie-Agentur GmbH (dena) – German Energy Agency



Subnational governments drive the energy transition

Mexican federal state continue to drive the energy transition. The industry positions itself as a key player in the production, use and export of green hydrogen. The German-Mexican Energy Partnership is revamping dialogues with Federal Ministries and public utilities on a just energy transition.

In Mexico, the Energy Partnership supported the political dialogue with the Ministry of Economy, the Ministry of Foreign Affairs and the Ministry of Energy in 2022. After several years of focusing on the subnational level, dialogue with Federal Ministries picked up speed with a series of high-level economic talks between Germany and Mexico.

In May, the German-Mexican Technical Commission on Economy and Energy confirmed the Energy



GIZ, the Mexican Hydrogen Association and Nuevo Leon State Government meet at the first hydrogen trade fair in Mexico (February 2022)

Partnership's focal topics. After President Steinmeier's visit to Mexico in September, a roundtable involving German companies was established. The Local Business Council of the Energy Partnership provided inputs for this new platform for high-level dialogue.

Subnational energy transition

The advances in the energy transition made by Mexican Federal States, achieved with the support of the Energy Partnership and other German cooperation projects, were presented at the Energy Day in December. The Brazilian state of Ceará, the Berlin Energy Agency and Agora Energiewende gave presentations on international best practices.

Energy Agencies and Ministries of Energy, Economic Affairs and Environment from 15 federal states met before the event. During the workshop

15 Mexican states discuss the energy transition at the sub-national level during a workshop (November 2022)



held in cooperation with the German-Mexican Chamber of Industry and Commerce (AHK Mexiko), states from different regions of Mexico developed common goals for the energy transition and expressed interest in further cooperation within the framework of the Energy Partnership.

Green hydrogen

A study on green hydrogen potential, developed by the Energy Partnership, continues to form the reference point for positioning Mexico with regard to green hydrogen investments.

The Energy Partnership helped the Mexican Ministry of Economy and the National Electric Utility (CFE) to shape internal strategic thinking on green hydrogen. Six federal states are receiving support to help them analyse their potential for producing, using and exporting green hydrogen.

Innovation and start-ups

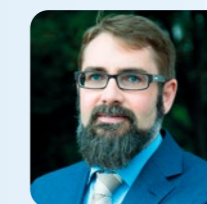
The winners of the start-up challenges organized by the Energy Partnership, in collaboration with Siemens Energy, universities and the AHK, took part in a study tour to Germany. The trip forged links with the German start-up ecosystem and sparked ongoing dialogue.

Together with the Inter-American Development Bank (IDB), the Energy Partnership organised a "Sustainable Energy Blockchain Challenge" to give additional impetus to the digital transformation.

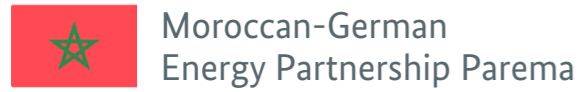


Partner ministry: Ministry of Energy
Office headquarters: Mexico City
Year of establishment: 2016
Focus on:

- Energy transition at the subnational level
- Green hydrogen
- Innovation and start-ups in the energy sector



Marco Hüls
 Head of Secretariat,
 Deutsche Gesellschaft für
 Internationale Zusammenarbeit
 (GIZ) GmbH



Bridging Europe and North Africa

By signing the Sustainable Electricity Trade (SET) Roadmap at COP27, and with the support of important policy developments in the area of green hydrogen, PAREMA is picking up speed and setting new milestones.

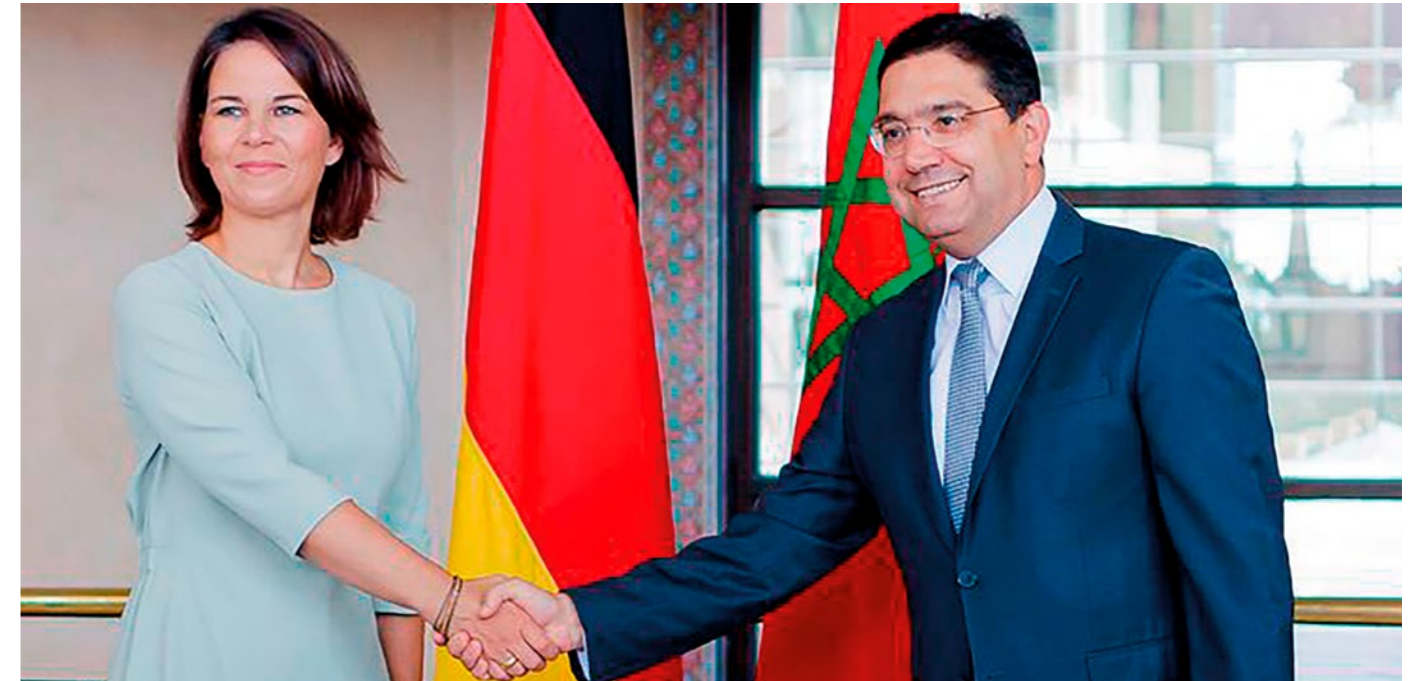
10th anniversary of the Energy Partnership

After the reconciliation of the diplomatic relations between Germany and Morocco, the major platform for institutionalised dialogue on energy policy for key ministries in both countries, PAREMA, is picking up speed again, ten years after it was established in 2012.

Its main task is helping Morocco to exploit its excellent potential for wind energy, solar energy and hydrogen. Morocco has shown that it can successfully implement projects and policies in these areas, and the share of renewable energies in its power generation – around 20% – serves as an example in the region. PAREMA is providing its partner institutions with ongoing support for Morocco’s Green H2 Action Plan – in particular by setting out H2 certification and regulations – and for its R&D Roadmap on H2.

Sustainable Electricity Trade (SET) Roadmap signing ceremony

After years of preparatory work supported by PAREMA, the SET Roadmap Memorandum of Understanding between Morocco and its European Partners France, Germany, Portugal and Spain has been signed on the sidelines of COP27. This landmark breakthrough aims to establish electricity trading between Morocco and members of the EU, with a two-year plan to align the necessary regulations. The first step will be the introduction of cross-border Power Purchase Agreements which, as the next step, will require further developments of the legal framework such as guarantees of origin, as well as the expansion of electricity interconnectors between the two continents. This great achievement of regional electricity market integration will also open up multiple business opportunities in the future.




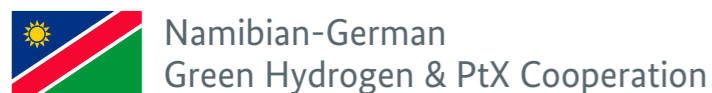
Joint declaration between Foreign Ministers Annalena Baerbock and Nasser Bourita in Rabat: central topics are energy and hydrogen partnership (August 2022)

Supporting the “World PtX Summit” in Marrakesh

In June, the “World PtX Summit” summit took place in Morocco, welcoming high-ranking representatives of the international PtX economy. The event was hosted by the Moroccan Research Institute for Solar Energy and New Energies (IRESEN), with PAREMA providing key expert speakers. The

main topics of the summit were Morocco's significant role as a future supplier of green H2, and ways in which private sector engagement in the field of H2 can be intensified using existing support formats such as H2-Uppp. The Moroccan press subsequently reported on the "intense" German involvement in the “World PtX Summit”.

<p>JUN</p> <p>BMWK, IRESEN, representatives of the Moroccan Ministry of Industry and “H2 Industry Cluster” discussed options to deepen private sector cooperation during the World PtX Summit</p>	<p>MAR</p> <p>Moroccan Delegation to BETD 2022 and high-level bilateral between Minister Dr Robert Habeck and the Moroccan Energy Minister Leila Benali</p>	<p>Partner ministry: Ministry of Energy Transition and Sustainable Development Office headquarters: Rabat Year of establishment: 2012 Focus on:</p> <ul style="list-style-type: none"> • Solar and wind energy development • Green H2 development and certification
<p>NOV</p> <p>Official signing of the SET Roadmap at COP27 in Egypt</p>	<p>AUG</p> <p>Joint declaration between Foreign Ministers Annalena Baerbock and Nasser Bourita in Rabat: central topics are energy and hydrogen partnership</p>	
 <p>Martin Becker Co-Head of Secretariat, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH</p>		

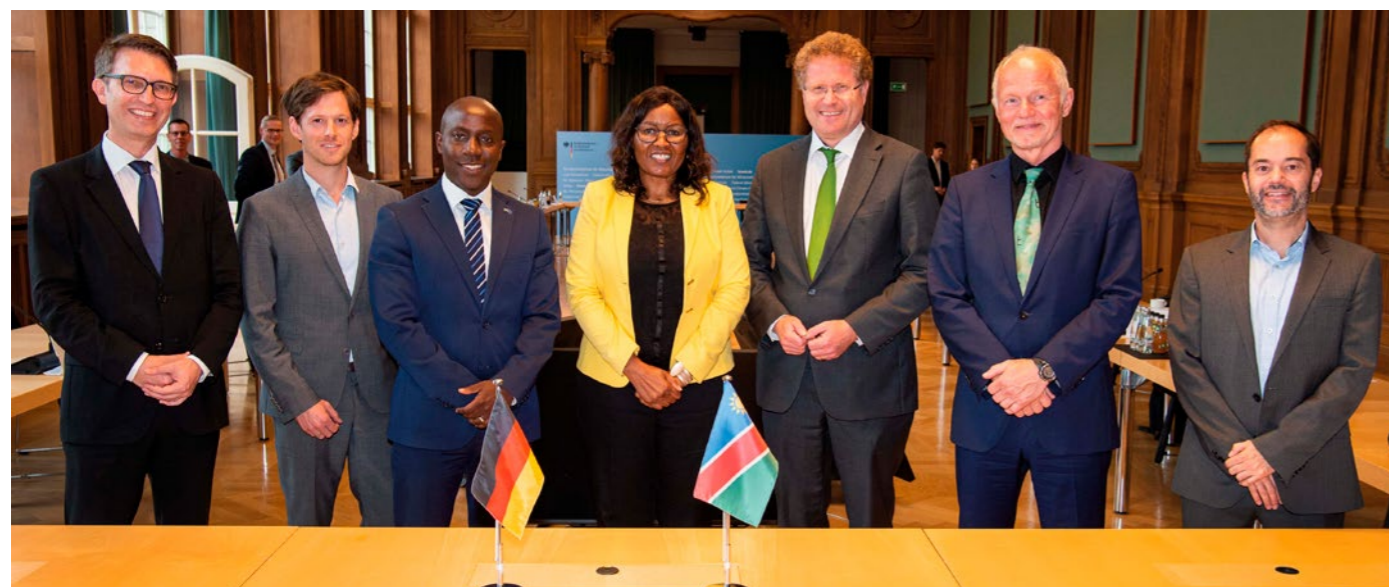


Green hydrogen – harnessing the power of sun and wind

With its excellent renewable resources, large available land areas and political stability, Namibia has great potential for producing green hydrogen. The Green Hydrogen Cooperation between Namibia and Germany is a prime example of international collaboration to create a win-win scenario: green hydrogen export to Germany plus significant industrial transformation in Namibia.

In March 2022, the German Federal Minister for Economic Affairs and Climate Action, Dr Robert Habeck, and H.E. Tom Alweendo, Energy Minister (MME) of Namibia, signed a joint declaration of intent on hydrogen cooperation between Germany and Namibia as part of the Berlin Energy Transition Dialogue. The agreement underscores both coun-

tries' determination to cooperate closely in the production, processing, application and transport of green hydrogen and associated synthetic fuels. Minister Habeck has appointed former State Secretary Rainer Baake as Special Envoy to turn the cooperation agreement into reality.



Germany-Namibia Business Roundtable in Berlin (September 2022)

Green hydrogen economy – key driver for jobs in Namibia

Concrete projects for collaboration already exist. The first project to produce green hydrogen will be built in the Tau/Khaeb National Park in southern Namibia. The investment volume for the first stage of the project roughly corresponds to Namibia's current gross national product. The development of a green hydrogen economy affords potential for a significant economic upswing in the country. 15,000 new jobs will be created during the construction phase, and 3,000 workers will be required for operation. To meet this demand, Namibia is working on the training and upskilling of local workers.

Thanks to excellent conditions for renewable electricity generation and a low population density, local needs for renewable energy and green hydrogen will rapidly be satisfied. Namibia therefore aims to export green hydrogen as early as 2026.



Namibia's Mines and Energy Minister, Tom Alweendo, and Germany's Vice-Chancellor and Federal Minister for Economic Affairs and Climate Action, Dr Robert Habeck, signing a Joint Declaration of Intent (JDoI) on the sidelines of the BETD (March 2022)

In December 2022, Minister Habeck visited Namibia and South Africa for a five-day trip. During his trip, he was accompanied by a delegation of representatives from German companies in order to initiate closer cooperation on green hydrogen.



Partner ministry: Ministry of Mines and Energy and Green Hydrogen Council
Office headquarters: Windhoek
Year of establishment: 2022
Focus on:

- Green hydrogen and PtX products



Sonja Kotin-Foerster
 Advisor,
 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Raising the potential of New Zealand's renewable power mix

The Energy Dialogue between Germany and New Zealand focused on topics of mutual interest, forging connections and sparking discussions between stakeholders. Activities complemented the ongoing cooperation in hydrogen research, funded by both Governments, and current policy developments.

Building on the Energy Dialogue's initial activities in 2021, discussions and meetings focused on hydrogen and offshore wind in 2022.



State Secretary Dr Patrick Graichen meets New Zealand Energy Minister Megan Woods (June 2022)

Hydrogen becomes hot topic

While New Zealand does not yet have a hydrogen strategy, the large renewables share in its power mix means that the potential for producing green hydrogen at scale is real. Cooperation between New Zealand and Germany on hydrogen is already taking place, and the research partnership between the University of Otago and Helmholtz Zentrum Hereon is at the forefront of this.

The Energy Dialogue sought to complement these activities with a policy and business perspective and, in April, invited New Zealand stakeholders to a well-received webinar about H2Global, with opening remarks by Stefan Krawielicki, then German Ambassador to New Zealand.

Offshore wind

One field in which New Zealand can benefit from Germany's experience and lessons learnt is offshore wind, which has been deployed in German waters for over ten years. New Zealand, by contrast, is just on the point of establishing the regulatory framework for exploiting the world-leading offshore resources along its coastline. Looking forward, the planned expansion of offshore wind in both countries provides plentiful topics for collaboration and discussion.



New Zealand's power mix is already largely renewable

High-level meeting confirms interest

The importance of the two countries' cooperation was reaffirmed in June at a ministerial meeting between New Zealand Energy Minister Megan Woods and the State Secretary of the German Federal Ministry for Economic Affairs and Climate Action (BMWK), Dr Patrick Graichen. Besides offshore wind and hydrogen, the decarbonisation of industry was singled out as a topic of mutual interest.

Outlook for 2023

In order to identify suitable cooperation potentials in the broad field of industrial decarbonisation, a study during 2023 will focus on highlighting cooperation potentials and developing suitable measures. Hydrogen will remain a key topic in the activities of the energy dialogue, and discussions on closer cooperation with the New Zealand Hydrogen Council are ongoing. After the initial sessions on offshore wind in late 2022, there are plans to organise follow-up discussions to focus on some areas in more detail.

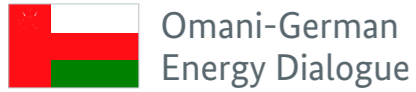


Partner ministry: Ministry of Business, Innovation and Employment
Office headquarters: Sydney
Year of establishment: 2021
Focus on:

- Hydrogen
- Offshore wind



Franziska Teichmann
Head of the German Secretariat for the Energy Cooperation with Australia and New Zealand, adelphi consult GmbH



Oman is firmly committed to becoming a leader in green hydrogen

Oman is poised to become a major player in the global green hydrogen market and is setting up structures for its hydrogen economy. The Energy Dialogue brings German technology solutions to the table and connects with partners for hydrogen offtake to support decarbonisation in Germany and create local value for the Omani economy.

With some of the best solar and wind resources in the Gulf region and a land area bigger than the Netherlands earmarked for hydrogen, Oman has the potential to become a key player in the global green hydrogen market. The Government of Oman is seeking to create new sources of economic value beyond fossil fuels, and is actively developing its hydrogen economy by creating a dedicated hydrogen entity, Hydrom.

The formalisation of the Energy Dialogue between Germany and Oman in July 2022, signed by the State Secretary of the Federal Ministry for Economic Affairs and Climate Action (BMWK), Dr Patrick Graichen, and Salim Al Aufi, Minister for Energy and Minerals (MEM), gave an immense boost to bilateral energy cooperation. A working group on renewable energy and green hydrogen is driving cooperation in the fields of renewable energy expansion and integration, electricity market design, interconnectors, energy efficiency and hydrogen and its derivatives.

Activities of the Energy Dialogue

In December 2022, BMWK visited Muscat for the second Green Hydrogen Summit Oman, accompanied by a large German private sector delegation. The Omani-German Energy Dialogue organised working group and project meetings on the sidelines of the summit, plus a roundtable involving companies from both countries. Unlocking the potential of the hydrogen economy for local economic value creation is a key priority for Oman. The Energy Dialogue is helping the MEM to evaluate the potentials along the hydrogen value chain and the role German companies can play in Oman's future green hydrogen economy.




Formalisation of the Omani-German Energy Dialogue, signed by Minister Al Aufi and State Secretary Dr Patrick Graichen (July 2022)

German companies are already involved in major green ammonia, green steel and hydrogen research projects planned for Oman, with political backing from BMWK. To further support the development of joint projects, the Energy Dialogue facilitates dialogue on safety and technical standards for hydrogen and sustainability criteria, and provides information on the funding support available. Moreover,

the BMWK also took part in a trilateral cooperation with Belgium to facilitate joint projects in Oman.

While hydrogen remains a focal topic, cooperation in 2023 will also focus on other levers for the energy transition and the achievement of Oman's net-zero target, such as energy efficiency and integration of renewables.

<p>NOV</p> <p>Study: "Germany's innovative solutions for the energy transition in the Gulf region"</p>	<p>OCT</p> <p>Local economic council meeting</p>	<p>Partner ministry: Ministry of Energy and Minerals Office headquarters: Berlin and Muscat Year of establishment: 2018 Focus on:</p> <ul style="list-style-type: none"> • Renewable energy • Hydrogen and synthetic fuel • Energy efficiency
<p>Working Group meetings in the field of hydrogen</p>	<p>DEC</p> <p>Oman Green Hydrogen Summit</p>	



Andrea Dertinger
 Consultant, Lead Omani-German Energy Dialogue, Guidehouse Energy Germany GmbH



New energy partnership accelerates hydrogen markets

Qatar has become the latest Gulf country to form an energy partnership with Germany. The partnership focuses on renewable energy, energy efficiency and demand-side management, hydrogen and liquified natural gas (LNG).

The Energy Partnership with Qatar was signed in Berlin on 20 May 2022, during a visit by H.H. Sheikh Al Thani. The Secretary of State at the German Federal Ministry for Economic Affairs and Climate Action (BMWK), Dr Robert Habeck, proposed this partnership during his visit to Qatar in March 2022, which was aimed at boosting mutual cooperation. The Qatari-German Energy Partnership has two working groups, one for hydrogen and LNG and one for renewables, energy efficiency and demand-side management. BMWK and QatarEnergy have developed a joint roadmap for the partnership.

Activities of the Energy Partnership

The working groups were launched in September 2022, during a Qatari delegation's visit to Berlin. The delegation also toured the EUREF Campus and the Efficiency House Plus, a research project on energy

efficient buildings by the German Government. The Energy Partnership organised a Strategic Energy Roundtable in November, inviting German companies already established in the Qatari market or interested in the idea.


Milestones in Qatar

In August 2022, QatarEnergy contracted the German manufacturer ThyssenKrupp Uhde to build a world-scale blue ammonia production facility to become operational by 2026. In October 2022, Qatar commissioned an 800 MW PV plant. The Energy Partnership aims to build upon these milestones to strengthen collaboration in the field of renewables.



Participants of the working group's kick-off of the energy partnership (September 2022)

	JUN	
	Study: "Covering Germany's green hydrogen demand: Transport options for enabling imports"	<p>Partner ministry: Ministry of Energy and Industry / Qatar Energy Office headquarters: Berlin and Doha Year of establishment: 2022 Focus on:</p> <ul style="list-style-type: none"> • Renewable energy • Hydrogen and synthetic fuels • Energy efficiency • Demand-side management • LNG
SEP	Working Group meetings	
	Visit to EUREF Campus and Efficiency House Plus	
	NOV	
Study: "Germany's innovative solutions for the energy transition in the Gulf region"	Strategic Energy Roundtable	



Matthias Schimmel
 Associate Director,
 Lead Qatari-German Energy Partnership,
 Guidehouse Energy Germany GmbH

Hydrogen has accelerated energy cooperation with Saudi Arabia

The Energy Dialogue with the Kingdom of Saudi Arabia (KSA) has been very active since the joint Clean Hydrogen Cooperation was launched in March 2021. The first Saudi-German Energy Day, held in February 2022, gave an additional boost to the collaboration between both countries in the field of renewable energies. Multiple high-level exchanges, including a visit by Chancellor Scholz, have highlighted the importance of this energy dialogue.

Several impressive activities related to the Saudi-German Energy Dialogue took place in 2022. With the ending of travel restrictions, implementation of the German-Saudi Clean Hydrogen Cooperation via dedicated working groups finally took off. In December 2021, the business and technology working groups held their inaugural meeting, and the regulatory working group followed suit in January 2022. The initial meetings, which took place in Riyadh, defined priorities and drew up a roadmap for implementation. Also in Riyadh, the first German-Saudi Energy Day took place in February 2022. It included the launch of the H2-Diplomacy Office in the city, which was supported by the German Federal Foreign Office. To give further impetus to knowledge exchange between Saudi and German stakeholders, the Energy Dialogue, partnered by H2-Diplomacy and the International PtX-Hub, organised a study tour to Berlin, Hamburg and Brussels, devoted to the topic of hydrogen and synthetic fuels. Saudi aca-

demics and representatives of the public and private sectors linked up with European hydrogen stakeholders to exchange ideas and accelerate the market ramp-up of hydrogen.

Joint study on hydrogen cooperation

Hydrogen imports from countries with favourable conditions like Saudi Arabia will play a major role in the decarbonisation of the German economy. Against this background, Guidehouse and the King Abdullah Petroleum Studies and Research Center (KAPSARC), with support from the German Federal Ministry for Economic Affairs and Climate Action (BMWK) and the Saudi Ministry of Energy, published a study on the potential for hydrogen cooperation between Germany and Saudi Arabia in August 2022.



Participants of the Saudi German study tour on hydrogen and synthetic fuels in front of the BMWK (June 2022)

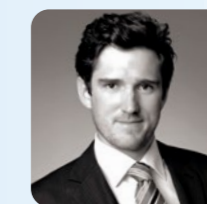
While the year 2022 established a strong foundation for cooperation in the field of clean hydrogen, in 2023 the focus will be on implementation

of projects, increasing energy efficiency and scaling up renewables deployment.

<p>JAN</p> <p>Meeting of the regulatory Working Group in the context of the German Saudi Clean Hydrogen Cooperation</p>	<p>FEB</p> <p>1st Saudi-German Energy Day</p>
<p>JUN</p> <p>Study tour on hydrogen and synthetic fuels</p>	<p>AUG</p> <p>Study: "Hydrogen cooperation potential Saudi Arabia and Germany"</p>
<p>DEC</p> <p>Meeting of the Business and Technology Working Group in the context of the German Saudi Clean Hydrogen Cooperation</p>	

Partner ministry: Ministry of Energy
Office headquarters: Berlin
Year of establishment: 2018
Focus on:

- Renewable energy
- Hydrogen and synthetic fuels
- Energy efficiency



Matthias Schimmel
 Associate Director,
 Lead Saudi-German Energy Dialogue,
 Guidehouse Energy Germany GmbH

Tackling today's challenges and building a just, low-carbon future

Beyond the headlines of the global energy crisis, South Africa is facing its own energy security challenges. In 2022, the Energy Partnership focused on meeting today's energy needs, while also demonstrating the pathway for a just transition towards a renewable energy future.

In the shadow of the global energy crisis that has resulted from Russia's war of aggression against Ukraine, South Africans are also facing domestic challenges. Insufficient generation capacity from an ageing power infrastructure led to load shedding on 207 days in 2022 and will continue for the foreseeable future. The ongoing crisis underlined the importance of a just transition towards renewable sources for energy security and inclusive economic growth.

Relations between South Africa and Germany were characterised by high-level political engagement on energy issues. In May, South African president Cyril Ramaphosa and German Chancellor Olaf Scholz launched a research project on sustainable aviation fuel based on green hydrogen. In December, German Minister for Economic Affairs and Climate Action Dr Robert Habeck and South African Minister for Mineral Resources and Energy Mr Gwede Mantashe engaged in a high-level dialogue on just energy transition and climate action. Minis-

ter Habeck's visit to South Africa also included taking part in a trade summit to engage with South Africa's growing renewable energy business sector.

Cooperation on green hydrogen, just transition, storage and energy efficiency

2022 saw an intensification of bilateral cooperation on green hydrogen. Benefiting from abundant wind, solar and land resources, mineral reserves, and expertise in power-to-liquid production, South Africa made green hydrogen commercialisation a cornerstone of its industrial strategy. Germany has supported this ambition from the onset and the two countries discussed future areas of cooperation.

The Just Energy Transition Partnership (JETP) between South Africa and France, Germany, the UK, US, and EU made important progress one year after its initial announcement. Ahead of the COP27 in Egypt, South Africa released an investment plan for



Site visit to the South African Renewable Energy Technology Centre during Minister Dr Robert Habeck's visit to South Africa (December 2022)

the JETP, while investment banks committed themselves to concessional financing for a socially just transition from coal to renewables.

As the share of renewable energy in South Africa is increasing, energy storage solutions are becoming increasingly relevant. The Energy Partnership supported the establishment of a network devoted to energy storage, facilitated dialogue between the South African and German Industry Associations

and developed a guidance handbook for battery project developers.

Energy efficiency and digitalisation increase energy security and reduce carbon emissions. The Energy Partnership organised a study tour to Germany for South African municipalities, businesses and research institutes and supported a study on the state of digitalisation and energy efficiency in the building sector.

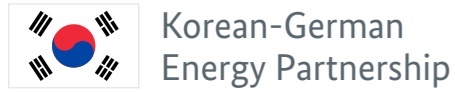
JUN	Moderation and speaker placement at Enlit Africa Conference	Local Business Advisory Council
NOV	Study tour on energy efficiency focusing on municipal energy management systems, street/area lighting and building energy performance certification	Factsheet on the South African energy market
		High-level dialogue on issues of just energy transition and climate action between Federal Minister Dr Robert Habeck and Mr Gwede Mantashe, South Africa's Minister of Mineral Resources and Energy
		German-African Business Summit

Partner ministry: Department of Mineral Resources and Energy
Office headquarters: Pretoria
Year of establishment: 2013
Focus on:

- Just transition
- Energy storage
- Flexibilisation of the energy system
- Green hydrogen
- Digitalisation
- Energy efficiency



Henrik Hartmann
 Head of Secretariat,
 Deutsche Gesellschaft für
 Internationale Zusammenarbeit
 (GIZ) GmbH



Results of the Korean-German Energy Day underline strong partnership and future cooperation

The 4th Korean-German Energy Day in Berlin in December marked the spectacular end of an exciting year for the partnership. In addition to the numerous activities of the working groups and Energy Partnership team in both countries, it showcased all the efforts of the partnership, the progress made so far and the way ahead for the cooperation.

The 4th Korean-German Energy Day

2022 was a vibrant year for the Korean-German Energy Partnership, which came to a fitting conclusion with the 4th Korean-German Energy Day, held face-to-face in Berlin for the first time since 2019. Devoted to the topic "Net zero: embrace the opportunities of the energy transition", the on-site event showed how important personal contact and dialogue are for deepening the relationships between energy transition stakeholders in the two countries. Important focal points of the event were hydrogen policy and projects in the two countries, opportunities of the energy transition with regard to the currently challenging situation of global energy insecurity, and the energy efficiency and effectiveness of different policy instruments.

Progress of the working groups

The working groups of the Korean-German Energy Partnership progressed the policy dialogue

between the partner ministries over the course of several meetings in 2022. The working group on New Green Energy Technologies focused on green hydrogen, the role of hydrogen in the decarbonisation of heavy industry and recent developments in hydrogen certification. The meetings of the working group on Energy Transition focused on renewables – especially offshore wind – energy efficiency in industry and the impact of the energy crisis. The frequent meetings of the Business Sub-Committee on Nuclear Decommissioning confirmed the mutual interest in cooperating on the decommissioning of nuclear power plants.

Webinars, lectures and conferences

The successful year was rounded off by a range of other events involving various formats, topics and target groups. Two webinars on Korea's new energy policy and energy security in Germany and Korea stimulated lively interest from business people and politicians. A lecture series on current develop-




Korean and German speakers at the 4th Korean-German Energy Day in Berlin (December 2022)

ments in energy policy was aimed at a young, committed target group including German and Korean students. In addition, the German-Korean Business Forum on Offshore Wind in Seoul and the 3rd Germany-Korea Hydrogen Conference in Berlin helped to promote cross-border cooperation at the business and research levels. A delegation trip to the InfraLeuna Chemical Park gave its participants an opportunity to deepen their technical and practical knowledge of hydrogen.

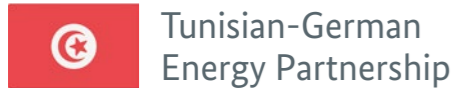


Attendee raising questions during Q&A session after panel discussion at 4th Korean-German Energy Day in Berlin (December 2022)

<p>JUN</p> <p>Business Roundtable on Green Hydrogen</p>	<p>SEP</p> <p>Support of the 3rd Germany-Korea Hydrogen Conference</p>	<p>Partner ministry: Ministry of Trade, Industry and Energy Office headquarters: Berlin Year of establishment: 2019 Focus on:</p> <ul style="list-style-type: none"> • Energy transition • Renewable energy • Energy efficiency • New green energy technologies • Green hydrogen • Nuclear decommissioning
<p>OCT</p> <p>Korean-German Business Forum on Offshore Wind</p>	<p>DEC</p> <p>4th Korean-German Energy Day</p>	
<p>DEC</p> <p>Webinar on "Energy Security in Germany and Korea"</p>		



Jana Narita
 Manager,
 adelphi consult GmbH



Significant progress in promoting an inclusive energy transition

In 2022, Tunisia undertook important steps to accelerate its energy transition and position itself as a strategic partner for Europe. The German-Tunisian Energy Partnership focused on renewable energies, grid integration and green hydrogen. It is also striving to promote an inclusive energy transition by enhancing the role of civil society.

Tunisia made significant progress in paving the way for an accelerated energy transition. It increased its renewable energy targets, launched auctions for 1.7 GW renewable capacity, received EU subsidies for an interconnector with Italy and is working on a green hydrogen strategy. The German-Tunisian Energy Partnership supported its Tunisian partners in their efforts to advance the energy transition.

Cross-border energy dialogue

The German-Tunisian dialogue focused on the export of green electricity and green hydrogen.

During peer-to-peer exchanges on interconnector technologies, the benefits of interconnectors for Tunisia were discussed. Furthermore, the German-Tunisian Energy Partnership provided a dialogue platform to give political support for the construction of an interconnector between Tunisia and Italy.

At the Berlin Energy Transition Dialogue, the Tunisian Energy Minister Neila Gongi gave a presentation on Tunisia's diplomatic policy for becoming a strategic hydrogen partner for Europe and Germany. In this context, the German-Tunisian Energy Partnership is conducting a comparative study for transporting hydrogen from Tunisia to Europe in order to determine Tunisia's export options.

Expanding renewables

The German-Tunisian Energy Partnership has been collaborating with the Tunisian Energy Ministry to identify public land suitable for tendering large-scale PV projects. As the country's share of renewables rises, grid integration will become increasingly important. The revision of the Grid Code is a key measure for ensuring grid stability in the future.

Public sector representatives, renewable energy developers and development banks discussed innovative financing models for renewable projects in



Lively discussions about the progress of the energy transition between the Ministry of Energy and donors about the progress of the energy transition took place at the first Energy Transition Fair (October 2022)

Tunisia at a conference on "Investments in renewable energies in Tunisia", co-organised by the German-Tunisian Energy Partnership and the International Renewable Energy Agency (IRENA).

Around 800 participants attended the first "Energy Transition Fair", a private sector initiative to establish business partnerships supported by the German-Tunisian Energy Partnership.

Towards an inclusive energy transition

The first Forum for Women Leaders in the Energy Sector provided a platform for dialogue and inspiration, while training courses for journalists enhanced their skills in informing the public about the Tunisian energy transition.



Partner ministry: Ministry of Industry, Mines and Energy

Office headquarters: Tunis

Year of establishment: 2012

Focus on:

- Renewable energies and grid integration
- Energy efficiency
- Innovation
- Cooperation with the private sector and civil society



Nicole Täumel
Head of Secretariat,
Deutsche Gesellschaft für
Internationale Zusammenarbeit
(GIZ) GmbH

A boost for the partnership: joint declaration of intent for closer cooperation on green hydrogen

Türkiye considerably stepped up its climate ambitions in 2021 by signing the Paris Agreement and setting itself the goal of achieving climate neutrality by 2053. To attain this goal, Türkiye will have to undertake considerable efforts to transform its energy systems and decarbonise its industry. The Turkish-German Energy Partnership has proven itself a reliable vehicle for tackling challenges related to the energy transition and climate change in both Türkiye and Germany.

The Turkish-German Energy Partnership has been supporting the exchange of knowledge and ideas to support the transformation of the energy system in both countries for more than ten years. The cooperation has become more intense since 2018 and now encompasses five working groups.

Working groups as guarantors for constant, intensive dialogue

Financing of energy efficiency measures in public buildings, green hydrogen, flexibilisation of grids, e-mobility and grid integration, geothermal cooling, regulation of electricity storage and flexibilisation of thermal power plants – these were the focal topics for the five working groups in 2022. The outcomes of bilateral workshops, study tours, technical studies and expert knowledge exchange have been integrated into national strategies and recommendations in Türkiye, such as the "National Ener-

gy Plan", "Hydrogen Technologies Strategy and Roadmap" and ongoing process on the 2nd National Energy Efficiency Plan (NEEAP). A handbook for planning and operating distribution grids with a high share of e-mobility and a study on the potential of green hydrogen in Türkiye have had an important impact on the bilateral debate regarding ways to achieve the climate neutrality target in both countries. The initial steps towards implementing an Energy Performance Contracting (EPC) pilot project with a Turkish partner have been made – the implementation of the project is being supported within the framework of the Energy Partnership.

Green hydrogen – the energy carrier of the future

In October, around 200 representatives from politics, business, science and civil society attended the



The two ministers sign the Joint Declaration of Intent on deepening cooperation in the field of green hydrogen at the 4th German-Turkish Energy Forum in Berlin (October 2022)

4th Turkish-German Energy Forum in Berlin – the partnership's most important platform. German Federal Minister for Economic Affairs and Climate Action Dr Robert Habeck and the Turkish Energy Minister Fatih Dönmez signed a joint declaration of intent (JDOI) on intensified cooperation in the field of green hydrogen. Türkiye has potential and the necessary conditions both for producing green hydrogen and for exporting it to Germany. The JDOI underscores both countries' commitment to cooperate closely in the production, processing, application and transport of green hydrogen. A task force consisting of government representatives from both countries is intended to boost and promote the cooperation, with industry closely involved.



Future energy concepts – insights into the smart microgrid at zee-Mobase (October 2022)

JAN	Techno-economic study on Türkiye's production and export potential for green hydrogen	MAY	Study: "Handbook on Planning and Operation of an E-Mobility Infrastructure"
JUN	Steering Group Meeting in Ankara	SEP	Delegation trip: "Flexible operation of thermal power plants in Germany and Belgium"
	Delegation of 12 Turkish start-ups to SET-Festival in Berlin		
OCT	4th Turkish-German Energy Forum in Berlin		Workshop and speaker placement at Energy Is Future World Energy Congress and Expo (EIF)

Partner ministry: Ministry of Energy and Natural Resources

Office headquarters: Istanbul

Year of establishment: 2012

Focus on:

- Renewable energy
- Energy efficiency
- Energy infrastructure and sector coupling
- Regulation of electricity and gas markets
- Flexibility of existing thermal power plants
- Green hydrogen



Lilia Mass
Project Director EP Türkiye,
Deutsche Energie-Agentur
GmbH (dena) – German
Energy Agency

Strategic expansion of the partnership for climate action and project implementation

The UAE and Germany significantly boosted their partnership in 2022. A key milestone was the shipment of blue ammonia test cargos to Germany. Besides energy, climate action now forms an additional pillar of the partnership. Chancellor Scholz and Minister Habeck paid high-level state visits and Germany hosted several ministerial meetings with the UAE.

The UAE and Germany share the ambition of achieving net-zero targets through measures that include expanding renewables, increasing energy efficiency and switching to hydrogen. The UAE aim to produce significant shares of Germany’s import demand for hydrogen by 2030. The Partnership between the UAE and Germany actively engages with the private sector. Hydrogen transport and certification was discussed within the Emirati-German Hydrogen Task Force, during a study tour by a high-level delegation, and at expert workshops. During the state visit by Chancellor Scholz, the “Energy Security & Industry Accelerator” (ESIA) was established. Under the ESIA umbrella, numerous projects in the fields of hydrogen, offshore wind, synthetic kerosene and short-term LNG and diesel deliveries receive active support. The first pilot shipments of blue ammonia reached the port of Hamburg in Octo-

ber. LNG shipments are expected in the first quarter of 2023. The UAE hydrogen strategy is being co-developed by Fraunhofer with the support of the Energy Partnership.

Climate Partnership and COP27

One important step was the expansion of the Partnership to include climate action, based on a Memorandum of Understanding signed in Berlin in October 2022. High-level carbon pricing roundtables and dialogues took place. During the COP27 climate conference in Egypt, the Partnership initiated the Trilateral Energy Efficiency Forum between Israel, the UAE and Germany. The Partnership will also play a key role in the preparation of COP28, due to be held in Dubai in 2023.



Launch of Energy Security and Industry Accelerator (ESIA) during Chancellor Olaf Scholz's UAE visit (September 2022)



Climate Partnership signing in Berlin (October 2022)

MAR

UAE visit by Minister Dr Robert Habeck

Emirati-German Hydrogen Taskforce in Abu Dhabi

MAY

JUN

Study tour on hydrogen and synthetic fuels to Germany

Germany visit by H.E. Sultan Al Jaber, Minister of Industry and Advanced Technology

SEP

UAE visit by Chancellor Olaf Scholz and launch of Energy Security and Industry Accelerator (ESIA)

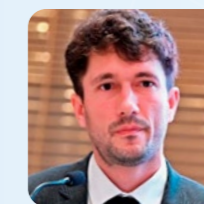
OCT

Signing of Climate Partnership in Berlin with H.E. Mariam Al Mheiri, Minister of Climate Change and Environment

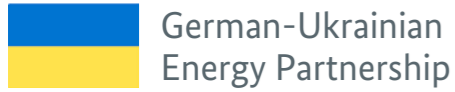
Partner ministry: Ministry of Energy and Infrastructure
Office headquarters: Dubai, Berlin
Year of establishment: 2017

Focus on:

- Hydrogen and synthetic fuels
- Renewable energy
- Energy efficiency
- Climate action



Henrik Schult
 Senior Consultant,
 Lead Emirati-German Energy Partnership,
 Guidehouse Energy Germany GmbH



Germany and Ukraine strengthen energy partnership in face of Russian invasion

Despite the obstacles posed by the Russian invasion, the Energy Partnership between Germany and Ukraine remains a reliable support for the Ukrainian Energy System. Thanks to the German government's help and the resilience of the Ukrainian transmission system, the Energy Partnership is providing significant funding and logistics for emergency aid, offering expert advice and supporting female energy professionals.

The Russian invasion of Ukraine created major challenges for the Energy Partnership in 2022. The Energy Partnership Secretariat had to be relocated to Germany. The Ukrainian transmission system operator, UkrEnergo, successfully maintained the power grid during island mode operation and was able to export surplus electricity to the EU after the European Network of Transmission System Operators (ENTSO-E) enabled synchronisation. However, between October and December 2022, the Russian army inflicted damage on 60% of Ukraine's energy infrastructure, disabling energy generation and supply facilities.

Due to these unprecedented events, the German and Ukrainian governments adapted Energy Partnership instruments to address the new needs of the Ukrainian energy sector.

Impact of 2022 and accomplishments

Under the leadership of the German Federal Ministry for Economic Affairs and Climate Action (BMWK)

and in collaboration with MinEnergO, the teams at dena (lead, renewables and H2) and the German Association for International Cooperation (GIZ) (secretariat implementation, Just Transition and energy efficiency projects) demonstrated remarkable adaptability to the drastically altered conditions.

Emergency aid for the Ukrainian energy system: BMWK contributed around €100 million to the Energy Community Fund and €40 million to a World Bank Single Donor Trust Fund to maintain Ukraine's electricity transmission network. A call for donations was implemented, enabling the delivery of more than 2,100 energy-related items.

Energy efficiency: The FEER GIZ-project (Promotion of Energy Efficiency and Implementation of the EU Energy Directive in Ukraine) continued to support the development and adoption of the law on large scale thermal modernisation of buildings. In August 2022, a methodology for surveying damaged infrastructure



Participants in the round table, "Core Aspects of Recovery and Energy Transition in Ukraine", Berlin

was developed. Further, support is being provided for public buildings in accordance with the "Build Back Better" principle.

Just Transition (JT) Ukraine (BMWK): Support has been given to pilot regions to host International Development Programmes and maintain public infrastructure, and for various other activities. At the Chervonohrad pilot location, the JT Action Plan and environmentally compatible mine closure works are being implemented regardless of the war.

ENTSO-E integration: Around 33 UkrEnergo employees were trained in the technical aspects of ENTSO-E integration.

Support for the functioning of the Ukrainian section of the Energy Partnership secretariat in Berlin: Technical, logistical and administrative support, ensuring the continued functioning of the Energy Partnership secretariat.

Support for displaced female energy experts: A network of female Ukrainian energy experts was created, who took part in two study tours and a certified training course.

Bilateral energy cooperation: A practical study of quick fixes in heat supply covered both emergency response and recovery issues. A concept was developed for the introduction of a biomethane register, implementation of which is due to begin in 2023

	MAR	
	Visit by a high-level delegation of MinEnergO to the BETD
MAY	
Delegation visit by "WE United for Ukraine" members to the Smarter E Europe in Munich		
	JUL	
	Online workshop: "Regulatory aspects of the introduction of a biomethane registry in Ukraine"
SEP	
Online seminar: "District heating in Ukraine"		
	DEC	
	Delegation and participation at the round table "Core aspects of the recovery and the energy transition in Ukraine"

Partner ministry: Energy Ministry of Ukraine
Office headquarters: Berlin and Kyiv
Year of establishment: 2020

- Focus on:**
- Providing emergency aid for Ukrainian energy sector
 - Renewable energy
 - Energy efficiency
 - Hydrogen
 - Just transition
 - Decarbonisation



Martin Schön-Chanishvili
 Project Director EP Ukraine,
 Deutsche Energie-Agentur GmbH (dena) – German Energy Agency

From ambition to action

With Special Envoy John Kerry and Federal Minister Dr Robert Habeck signing the Joint Declaration of Intent, the US-Germany Climate and Energy Partnership was officially launched in May 2022. It aims at deepening the constructive dialogue on energy and climate and transforming the ambitious targets of both countries into concrete action.

Further signatories of the Partnership include US Secretary of Energy Jennifer Granholm and Germany's Minister for Foreign Affairs Annalena Baerbock, which gives it strong political backing on both sides of the Atlantic. The Partnership aims to enhance cooperation in the fields of climate action, clean energy technologies and energy transitions in emerging economies. Key areas of common interest were defined accordingly and agreement was quickly reached on the first in-depth topics, which were addressed by newly set up bilateral working groups.

Extensive cooperation on key topics

For offshore wind, the US and Germany share the goal of reaching 30 GW by 2030, together with the challenges that accompany this ambitious target. Experts from the working group visited each other for a transatlantic knowledge exchange, returning

with valuable insights and new inputs for spatial planning, supply chains and research projects.

The hydrogen working group focused on topics relevant for both countries, such as hydrogen sustainability standards and certification and the potential for transatlantic hydrogen trade. The conversations were explored in greater depth in expert workshops and a virtual transatlantic trip to Germany on the topic of hydrogen.

Another topic agreed to be significant was zero emission vehicles, and activities related to this included a public event on decarbonising the road haulage industry through electrification and hydrogen.

In addition to their bilateral exchange, the US and Germany seek to work together closely on multilateral climate, energy and development partnerships.

One topic particularly relevant in this regard is the Just Energy Transition Partnerships (JETPs) with third countries.

The industry perspective was included through business roundtables that informed the work of the Partnership and provided feedback on trade relations and policy challenges in the climate and energy industries.

At last: personal meetings and networking after two years of COVID restrictions

Activities culminated in the first US-Germany Climate and Energy Summit in Pittsburgh, which provided a platform for climate and energy experts from government, industry, research and civil society to exchange ideas and learn from each other's experiences. Decarbonisation and energy security challenges and measures dominated the discussions, which continued well into the evening over a (German) beer.



Special Envoy John Kerry and Minister Dr Robert Habeck signing the Joint Declaration of Intent (May 2022)





US offshore wind experts visit Germany for transatlantic knowledge transfer and get to fly to the Heligoland offshore wind site (June 2022)



Partner ministry: US Department of Energy, US Department of State, US Special Presidential Envoy for Climate
Office headquarters: Berlin and Chicago
Year of establishment: 2022

- Focus on:**
- Offshore wind
 - Hydrogen
 - Zero-emission vehicles
 - Third country cooperation

 **Britta Schneider**
Senior Manager, German American Chamber of Commerce of the Midwest

 **Bastian Stenzel**
Senior Manager, adelphi consult GmbH

Huge demand for energy efficient refurbishment of residential buildings

The Uzbek government has introduced a new development strategy with ambitious targets for renewable energy sources, hydrogen and energy efficiency. The Energy Dialogue is ready to support Uzbekistan in achieving these aims, with a particular focus on energy efficiency measures and energy-efficient refurbishment of residential buildings.

With its resolution on “Measures to increase the effectiveness of reforms”, the Uzbek government has set itself the goal of transitioning the Republic of Uzbekistan to a green economy by 2030. It has set ambitious targets for energy efficiency, hydrogen and renewables and aims to increase electricity generation by solar, wind and hydropower plants to 30 per cent by 2030. This plan to reform Uzbekistan’s energy policy is attracting the attention of numerous international actors, and the country’s huge potential is bringing in investors. The Energy Dialogue is ready to support the Uzbek government in transforming the energy system and creating a regulatory framework for it. German expertise and technical knowledge in all aspects of the energy transition can support them with targeted advice on specific topics, expert discussions, help in organising workshops and study trips.

Political framework as a top priority for energy-efficient refurbishment

A key priority for the German-Uzbek Energy Dialogue is creating and developing the political framework for energy-efficient refurbishment and formulating recommendations for the national programme to support the renovation of multi-family residential houses in Uzbekistan. In this field, the cooperation deals with three main topics: the legal framework, information on funding and capacity-building services.

In August 2022, the Energy Dialogue welcomed its partners from the Uzbek Ministry of Buildings and Municipal Services to Berlin. During this bilateral exchange, the two sides discussed issues relating to the qualitative and structural development of the dialogue on energy issues over the



Germany and Uzbekistan join forces on the energy transition at the 6th Session of the German-Uzbek Business Council in Tashkent (July 2022)



Presentation of the results of dena’s study of the role of women in the energy sector at the Uzbekistan Energy Forum (July 2022)

next year. The focal points of interest were the German CO2 certification and quality assurance systems and the possibilities for financing pilot refurbishment projects. The trip enabled further discussion of ideas that had been mooted during

an intensive dialogue in Tashkent a month before, in July 2022. In numerous meetings and conferences, the Energy Dialogue addressed energy efficiency in the building sector and the expansion of renewable energies.

JUL

Active involvement in the 6th Session of the German-Uzbek Business Council, Tashkent

Participation in German-Uzbek Business Forum, Tashkent

SEP

Welcoming a delegation from the Uzbek partner ministry in Berlin

Partner ministry: Ministry of Buildings and Municipal Services

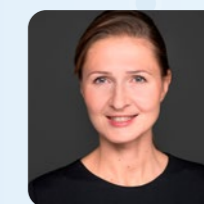
Ministry of Energy

Office headquarters: Berlin

Year of establishment: 2018

Focus on:

- Energy efficiency in buildings
- Integration of renewable energy into the grid



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In 2022 Vietnam and Germany initiate dialogue on energy transition

In March 2022, during the first Vietnamese-German Energy Day in Berlin, the Vietnamese-German Energy Dialogue was launched to boost bilateral cooperation on common challenges of the energy transition. Both countries have agreed on focal topics for the dialogue that align with Vietnam's Net-Zero 2050 strategy.

In March 2022, a high-level Vietnamese government delegation attended the Berlin Energy Transition Dialogue 2022 and the first Vietnamese-German Energy Day. Vice-Minister Dang Hoan An from Vietnam's Ministry of Industry and Trade (MOIT) and State Secretary Dr Patrick Graichen discussed concrete solutions for the challenges of the energy transition and agreed on cooperation topics such as power system integration of renewable energies, energy efficiency and green hydrogen production. Furthermore, the delegation visited various sites relevant to the topics of offshore wind, renewable energy law and energy efficiency.

The Joint Declaration of Intent for the establishment of the bilateral Energy Dialogue, agreed in March, was formally signed in Hanoi in November 2022 by MOIT Vice-Minister An and Parliamentary State Secretary Franziska Brantner, as part of the latter's visit to Vietnam in the company of German Chancellor Olaf Scholz.

A range of dialogue formats and cooperation activities in 2022

During a business roundtable in November 2022, representatives of the German Federal Ministry for Economic Affairs and Climate Action, the German Chamber of Industry and Commerce (AHK Vietnam) and various German companies learned about the challenges and great opportunities for German enterprises in the booming Vietnamese energy market. An expert workshop with the Vietnamese state utility company Electricity Vietnam (EVN) addressed challenges and solutions for renewable energy grid integration and power system management. Further meetings with high-level government representatives of various ministries and the National Assembly of Vietnam were used to exchange ideas on strategies and solutions for the energy transition, including concepts for converting coal-fired power plants into renewable energy storage facilities.



Representatives of the Federal Ministry for Economic Affairs and Climate Action, the German Association for International Cooperation (GIZ) and a European grid operator meet Vietnam Electricity representatives in a roundtable discussion on grid integration of renewable energy at Vietnam Electricity Headquarters, Hanoi (November 2022)

A number of studies developed in the framework of the Energy Dialogue shed light on concrete pathways for the Vietnamese energy transition. A socio-economic impact study highlights substantial socio-economic benefits of the energy transition for Vietnam, in particular increased energy security, job creation and reductions in air pollution with its associated health costs. A study on green hydrogen export potentials identifies market opportunities and requirements for concrete political and financial support for the development of a green hydrogen market in the country.



MOIT Vice Minister An and Parliamentary State Secretary Franziska Brantner signing the Joint Declaration of Intent in Hanoi (November 2022)

FEB Workshops on Energy Efficiency Clubs	
Delegation to the BETD	MAR Vietnamese-German Energy Day
NOV Roundtable with German Chamber of Commerce Vietnam (AHK Vietnam) and German companies	Bilateral meeting with Ministry of Industry and Trade, Electricity and Renewable Energy Department

- Partner ministry:** Ministry of Industry and Trade
Office headquarters: Hanoi
Year of establishment: 2022
Focus on:
- Renewable energy development
 - Power system development
 - Energy efficiency
 - Green hydrogen



Markus Bissel
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Empowering women in energy transition

Gender diversity drives innovative and integrative solutions, opens up new ways to use technology, yields valuable perspectives for social and economic development, and provides an abundant pool of talent for the transition to a climate-neutral energy system. Renewable energy projects that are gender-inclusive are more effective and have a wider reach. Climate and energy policy that factors in gender equality makes for more sustainable measures.

Women nevertheless remain underrepresented in the energy sector and, in comparison to men, they are in general structurally disadvantaged. This is reflected in issues such as the glass ceiling, and in wage and pension gaps in industrialised economies. In the Global South, women and girls often experience the effects of climate change more severely than men, and have less access to climate and energy related resources and services. At the same time, the demand for skilled workers to drive the energy transition is growing, and thus so too is the range of employment opportunities. To ensure an inclusive, fair and above all successful energy transition, women must be more strongly involved. In 2022, energy partnerships played a part here through projects that focused on female empowerment.



The Women Energize Women conference took place for the first time as a side event at Smarter E Europe in Munich (May 2022)

Close cooperation and collaboration with women's networks

Local and regional women's networks bring about change at a grassroots level. They serve as a platform for women to establish professional contacts and to share experience and expertise. The energy partnerships collaborate with more than 20 existing women's networks in their respective partner countries. Last year, there were networking activities and panel discussions run in particular by women's networks from Ethiopia, Brazil, Mexico and Türkiye. Following the start of Russia's war on Ukraine, the initiative Women in Energy United for Ukraine was launched in cooperation with the Ukrainian women's network Women's Energy Club of Ukraine. This collaboration brings together women who worked as energy experts before fleeing Ukraine and supports them through a range of measures to foster their personal and professional development. In 2022, the participants visited the Smarter E Europe trade fair in Munich and also travelled to Berlin for an energy policy dialogue with representatives from government and industry.



Participants of the initiative "Women in Energy United for Ukraine" during study tour in Berlin (August 2022)

Since 2021, energy partnership programmes have been cooperating with the Global Women's Network for the Energy Transition (GWNET). In 2022, more than 130 women from 16 countries took part in GWNET's mentoring programme. The participants established tandems with experienced mentors for the purposes of bilateral dialogue. An online training course covered leadership skills and specialist knowledge. Selected participants also took part in a study tour.

Fostering dialogue and visibility

In Japan, Tunisia and Türkiye, exclusive networking structures, such as the Women's Lunch and the Women's Dinner, facilitated informal discussions in a protected setting. In the public sphere, discussions around gender equality in the energy sector are becoming established as an integral part of energy forums and international conferences, as in Brazil, Kazakhstan and Uzbekistan. Tunisia ranks as a gender champion in the MENA region. Here, women executives from both the public and private sectors shared their experiences and perspectives at a forum last year. Chile and India are focusing on women in the emerging hydrogen economy

to facilitate dialogue between women at the start of their careers and experienced female experts. In China, the initiative Women in Green Energy has been running since 2020 and advocates for the equal participation of women in the energy transition.

In 2022, Ethiopia specifically supported women-led startups through its own programme and awarded an energy prize to successful female entrepreneurs. South Africa conducted a study to analyse gender distribution in the wind and solar energy industries, and thus uncovered how many women are employed in these subsectors.

The Federal Ministry for Economic Affairs and Climate Action is promoting the visibility and global empowerment of women in the energy transition through the global campaign Women Energize Women (WEW). In addition to monthly events and social media activity, an international WEW conference was held in the context of Smarter E Europe, drawing over 250 participants from 50 countries.

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