Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

COBENEFITS

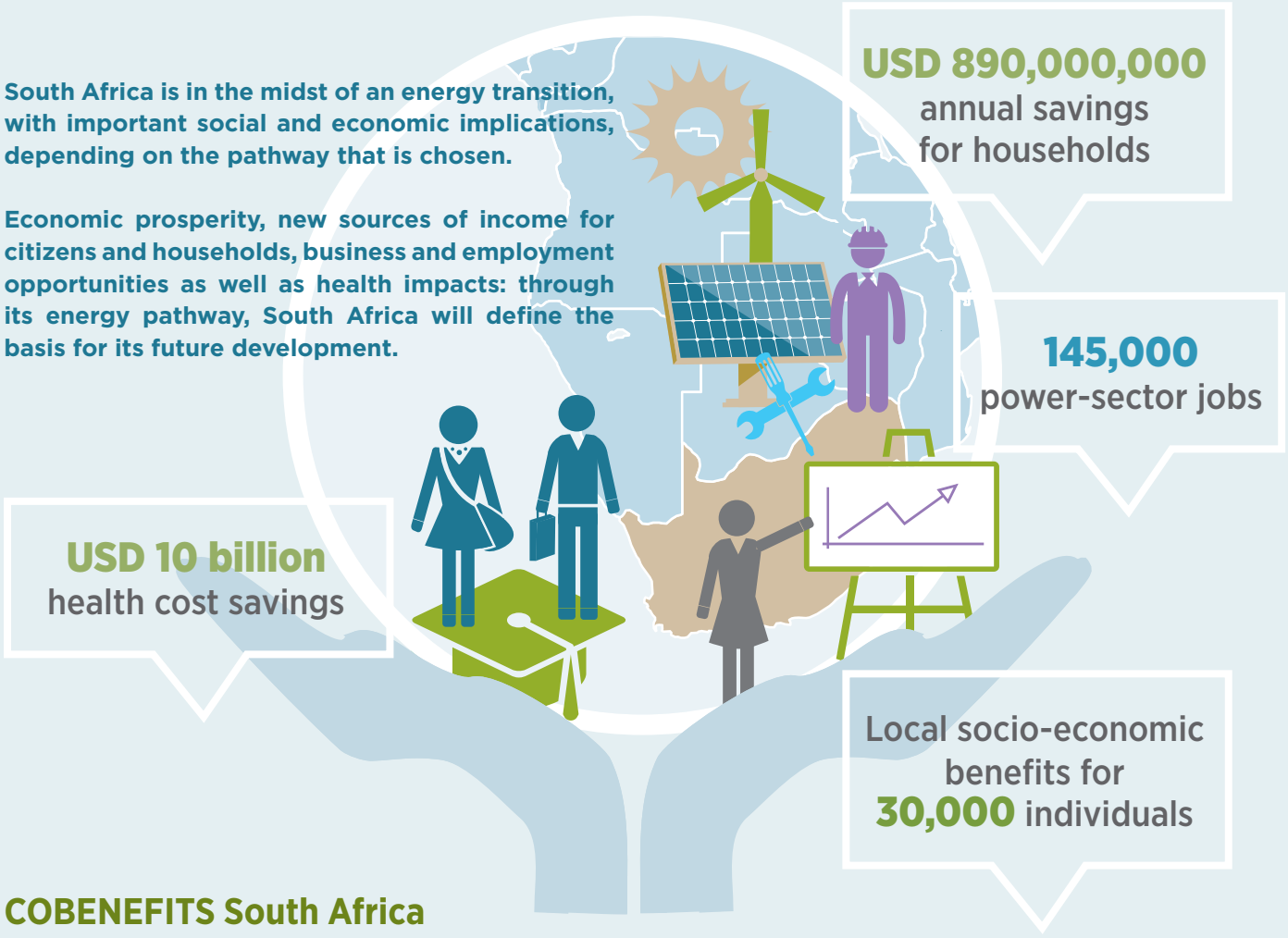
IASS POTSDAM

MAKING THE PARIS AGREEMENT A SUCCESS FOR THE PLANET AND THE PEOPLE OF SOUTH AFRICA

COP25 Briefing: Co-Benefits for Just Energy Futures, December 2019

South Africa is in the midst of an energy transition, with important social and economic implications, depending on the pathway that is chosen.

Economic prosperity, new sources of income for citizens and households, business and employment opportunities as well as health impacts: through its energy pathway, South Africa will define the basis for its future development.



COBENEFITS South Africa

Under the framework of Germany's International Climate Initiative (IKI), and in partnership with the Departments of Environmental Affairs (DEA) and Energy (DoE) the COBENEFITS project has assessed important social and economic co-benefits of increasing the shares of carbon-neutral renewable energy in South Africa's power systems. Building on these assessment results the project consortium has worked with the government of South Africa to develop policy options to unlock these co-benefits for the South African citizens and businesses, to be published in the upcoming COBENEFITS Policy Report for South Africa.

The results of the co-benefits assessments have been published in the 2019 COBENEFITS South Africa Study series, which can be downloaded from www.cobenefits.info

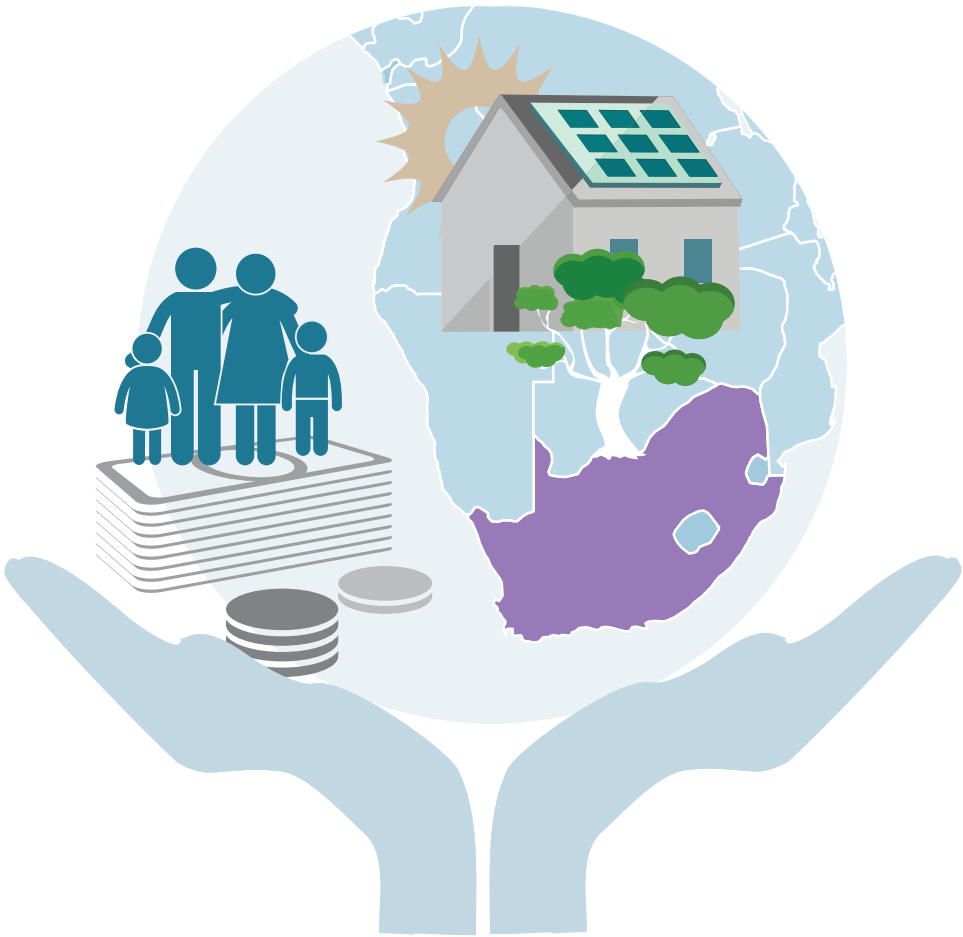
COBENEFITS South study series Series 2019 – Key results

Political decisions on South Africa's energy future link the missions and mandates of many government-departments beyond energy, such as environment, industry development, science and technological innovation. Importantly, the whole debate boils down to a single question:

"How can renewables improve the lives of the people and communities in South Africa?"

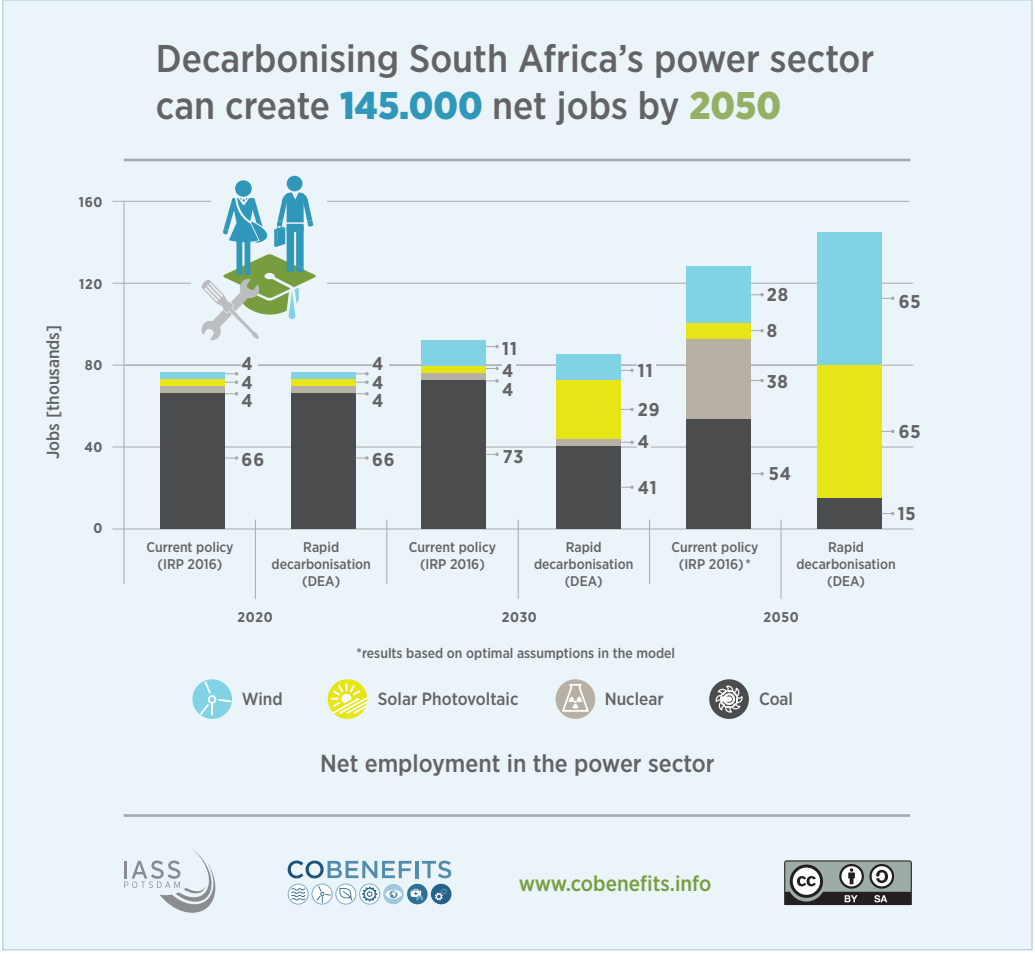
South Africa, among 195 parties to date, has ratified the Paris Agreement, to combat climate change and provide current and future generations with opportunities to flourish. Under the guidance of the **National Planning Commission**, municipalities, entrepreneurs, citizens and policymakers are debating pathways to achieve a just transition to a low-carbon, climate-resilient economy and society in South Africa.

With this study series, we seek to contribute to these important deliberations by offering a scientific basis for **harnessing the social and economic co-benefits of building a low-carbon, renewable energy system while facilitating a just transition, thereby making the Paris Agreement a success for the planet and the people of South Africa.**



South Africa can unlock future-oriented employment opportunities by increasing the share of renewables

- **Direct employment in the power sector can be expected to increase from currently 78,000 jobs to 145,000 jobs in 2050, including around each 65,000 jobs in the wind power and solar sector**, by following the *Rapid Decarbonisation* pathway, defined by South Africa's Department of Environmental Affairs[1] (DEA). With the decision of South Africa's government to scale up renewables in its power sector planning[2], additional employment effects can be expected in the short term until 2030.
- **Following the historical development in the power sector with predominant high-skilled labour, about 70 % of jobs created through the shift towards renewable energy occur in the highly skilled groups.** This growth is most distinct in the *Rapid Decarbonisation* pathway, defined by South Africa's Department of Environmental Affairs (DEA) and the Least-Cost Renewable energy pathway, developed by the Council for Scientific and Industrial Research (CSIR), both reaching a share of 76 % in 2050.
- **Coal-sector-based employment is expected to decline regardless of a shift in power generation towards renewable energy sources, with 35 – 40 % decline in employment between 2020 and 2050.** However, the transition process should be managed politically, to mitigate negative impacts on affected workers and communities. In this respect the national *Just Transition Dialogue* process, facilitated by South Africa's National Planning Commission, can be expected to play a key role.



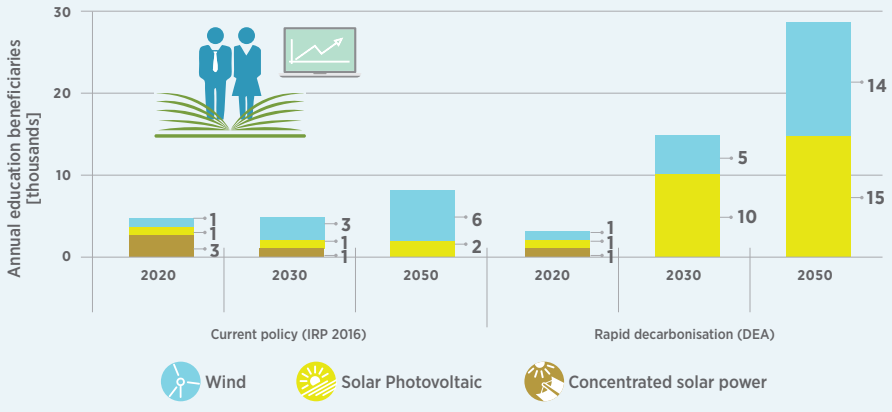
[1] The Rapid Decarbonization pathway of South Africa's Department of Environmental Affairs (DEA) has been issued as 'work in progress' scenario. The presented assessment results are meant to inform current political deliberations around this scenario in the context of further energy pathways. The Rapid Decarbonization pathway of DEA will be finalised and aligned with the *transition vision* of the National Planning Commission in 2020.

[2] The calculations of the 2019 COBENEFITS South Africa Assessment Studies compare the update of South Africa's Integrated Resource Plan (IRP) from the IRP 2016 version to the proposed IRP 2018 version. The references in this briefing note to the decision of South Africa's government to scale up renewables in its power sector planning are pointing to this comparison.

Renewable energy projects contribute to socio-economic development in South Africa's rural communities

- **With the decision to scale up renewables in its power sector planning, South Africa's government will have substantially increased the number of individuals to access education programmes through socio-economic development (SED) schemes,** increasing the number of annual beneficiaries from 8,000 to 19,000 by the year 2050. The number of local beneficiaries can be further increased to nearly 30,000 individuals per year by following the *Rapid Decarbonisation* pathway, defined by South Africa's Department of Environmental Affairs (DEA)
- **Through South Africa's enterprise development (ED) schemes local enterprises in marginalised communities will benefit from scaling up renewable energy.** Through the current energy planning pathway more than 2,200 local enterprises will benefit from the ED scheme in the year 2050. However, the number of benefitting local enterprises can be expected to grow by 50 % to 3,300 by following the *Rapid Decarbonisation* pathway, defined by South Africa's Department of Environmental Affairs (DEA)
- **In terms of local job benefits, with the decision to scale up renewables in its power sector planning, South Africa's government will have enabled almost 5,000 additional jobs in local enterprises** through the enterprise development (ED) scheme by the year 2050. These local employment benefits could be even doubled to a total of almost 10,000 jobs in local enterprises, by further increasing the share of renewable energy in line of the *Rapid Decarbonisation* pathway, defined by South Africa's Department of Environmental Affairs (DEA).

By following an ambitious decarbonisation pathway **30.000** people per year in rural South Africa can benefit from access to education programmes by **2050**



Educational beneficiaries of South Africa's socio-economic development (SED) schemes

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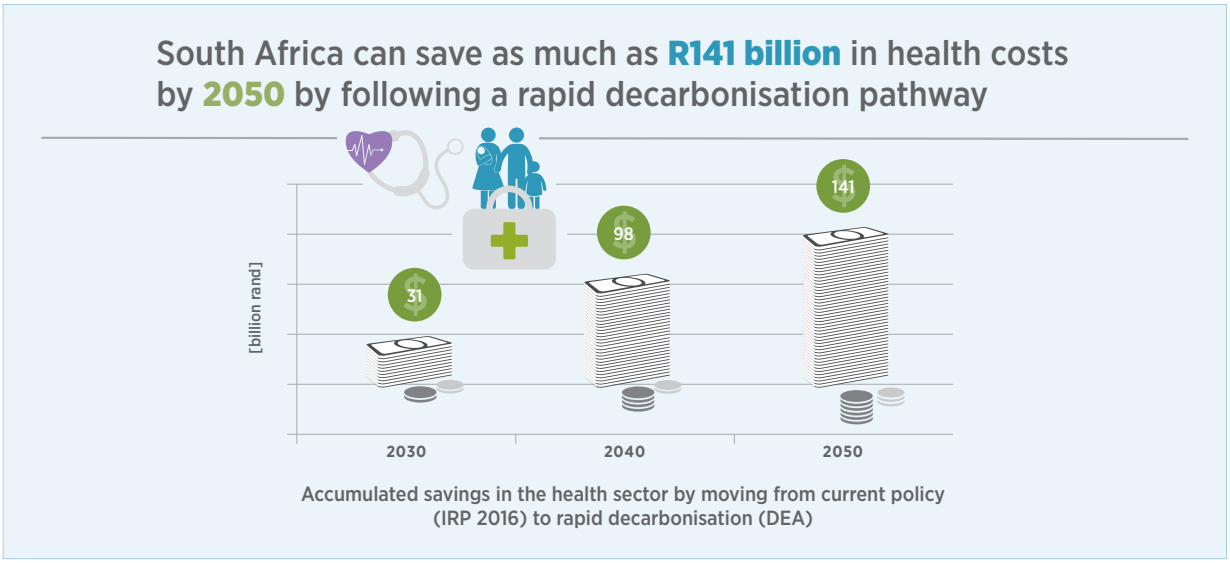
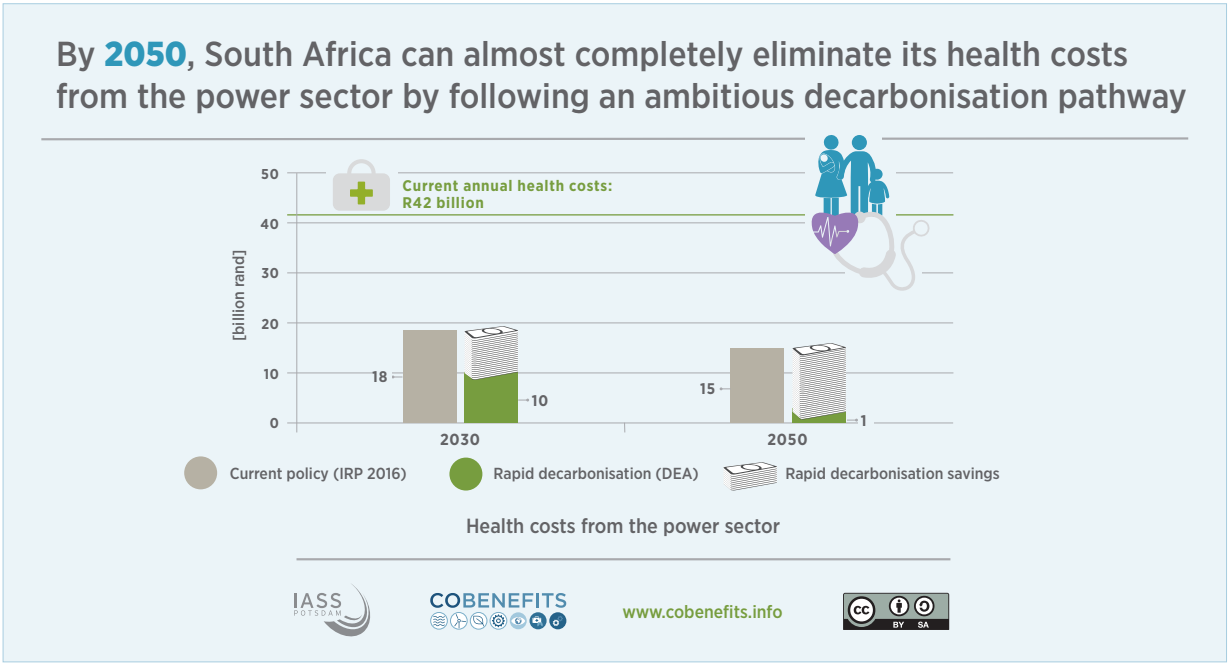
Cutting health costs and saving lives by decarbonising South Africa's power sector

- **Estimated health costs of coal power generation in 2018 range from USD 750,000,000 (11 billion South African Rand, lower estimate) up to USD 2 billon (30 billion Rand, upper estimate) and will continue to rise until 2022.** This equates to a health cost externality of USD 0.3–1 cents (Rand 5–15 cents) per kWh of energy generated from coal.
- **As many as 2,080 premature deaths annually can be attributed to air pollution from power plants in South Africa.** Furthermore, coal power generation reduces South Africa's workforce productivity: 27 % of health costs are associated with restricted activity days.
- **With the decision to scale up renewables in its power sector planning, South Africa's government will have cut health costs associated with the power sector by 25% until the year 2050.** By following the *Rapid Decarbonisation* pathway, defined by South Africa's Department of Environmental Affairs (DEA), health costs by the year 2050 can be reduced by an additional 20 %, amounting to nearly USD 10 billion (R141 billion) in absolute savings (by 2040: USD 6.7 billion).





South African households and businesses can save money by investing in solar

- **South Africa has a tremendous potential for rooftop solar PV. It is technically and economically feasible to install more than 11 GW of solar PV on residential rooftops in the metropolitan municipalities of South Africa by 2030** (total capacity in 2018: 285 MW).
- **South African households and businesses can save money by investing in solar: annual savings for the residential sector alone sum up to around USD 890,000,000** (nearly 13 billion Rand).
- **For residential prosumers, monthly savings range from USD $14 to $37 for a 2 kW system. This would result in annual savings ranging from USD $165 to $445** (2,400 to 6,500 Rand). For a typical 60kW commercial system, average annual savings of USD $1.370 (20,000 Rand) can be realized over the system's lifespan.

COBENEFITS South Africa Report Series 2019: Unlocking social and economic co-benefits for a just and sustainable energy future

The COBENEFITS South Africa Report Series 2019 is published by the Institute for Advanced Sustainability Studies (IASS) and the Council for Scientific and Industrial Research (CSIR) Energy Center. The study series has been facilitated through financial support from the International Climate Initiative of Germany (IKI).

Building on the close collaboration with the Departments of Environmental Affairs (DEA) and Energy (DoE), together with the Independent Power Producers (IPP) Office, the Departments of Trade and Industry (DTI) and Science and Technology (DST) of South Africa, the study series provides guidance to government departments on further shaping an enabling environment to unlock the social and economic co-benefits for a just and sustainable energy future for the people of South Africa.

The COBENEFITS project supports national authorities and knowledge partners in countries worldwide to connect social and economic co-benefits of decarbonizing the power sector to national development priorities and to mobilise these co-benefits for early and ambitious climate action. The project supports efforts to develop enhanced NDCs with the ambition to deliver on the Paris Agreement and the 2030 Agenda on Sustainable Development (SDGs) and to enable a just transition.

COBENEFITS facilitates international mutual learning and capacity building among policymakers, knowledge partners, and multipliers through a range of connected measures: country-specific co-benefits assessments, online and face-to-face trainings, and policy dialogue sessions on enabling policy options and overcoming barriers to unlock the identified co-benefits in the target countries.

COBENEFITS is part of the International Climate Initiative (IKI). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag. The project is coordinated by the Institute for Advanced Sustainability Studies (IASS, Lead) in partnership with the Renewables Academy (RENAC), Independent Institute for Environmental Issues (UfU), IET – International Energy Transition GmbH.

How we work

IASS Potsdam: Sustainability & Opportunity

The Institute for Advanced Sustainability Studies (IASS) Potsdam was founded in 2009 as independent research institute for the purpose of gathering together all relevant forms of knowledge from science, society and politics in order to initiate and support a **transformation towards sustainable development that is grounded in scientific research**.

Currently more than 100 researchers from over 30 different countries are working at the institute on projects that span the humanities and the natural and social sciences. In view of current political deliberations around further increasing the share of renewable energy and phasing out coal power in the context of Germany's Energiewende, the IASS explores the **social performance of renewable energy for citizens and communities.** With its partners in local and federal state governments the IASS team develops **dialogic approaches to ensure climate ambition and social ownership to foster a fair and sustainable energy future in Germany.**

With our political partners and knowledge partners around the globe we are **co-generating solutions and policy option** to unlock the socio-economic opportunities of renewable energies and to build new and effective alliances for **ambitious climate policies and just energy futures worldwide**.

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INTERNATIONAL CLIMATE INITIATIVE (IKI)

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