



**IKEM**

# **Annual Report**

**2020**



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# Foreword

**Dear readers,**

In many respects, we have gained a clearer view of the world as a result of the COVID-19 pandemic. The air itself is cleaner: satellite images of Earth show brightening skies over industrialised nations once smothered by smog. In a more figurative sense, the past year has revealed an important truth: society can mobilise behind scientific research to respond to crises quickly. Measures to reduce the spread of coronavirus leave little doubt that changes are possible and financial resources are available – if there is the political will to act. We must now demonstrate this same level of commitment to combat the climate crisis.

Germany's CO<sub>2</sub> emissions plummeted by roughly 70 million tonnes over the past year, allowing the country to meet its 2020 climate target. But this achievement should not be interpreted as the sign of a successful climate policy. It was the result of measures imposed in response to the pandemic – nothing more than a temporary respite from a persistent trend. The climate crisis remains the greatest challenge of our time. We must implement effective long-term measures to limit global warming and prevent the 1.5-degree target set in the Paris Agreement from slipping entirely out of reach.

Over the last year, IKEM continued to pursue this goal. We defied the pandemic by consistently working from home, holding countless digital meetings and integrating new virtual formats into our regular events. Almost overnight, we shifted from on-site to remote working. And our participation in more than 70 projects allowed us to forge ahead with our research into today's most pressing problems. These projects – some of which are featured in this annual report – explore a broad range of crucial topics, from structural change in former coal regions, to automated driving, to the transformation of the heating sector. On behalf of IKEM, I would like to express my sincere gratitude to each of our project partners, supporting organisations and contractors, without whom none of this would be possible.

We also extend a special thanks to our strategic partners: Becker Büttner Held, Becker Büttner Held Consulting, Kisters, Viessmann Deutschland and Enertrag. Despite all the challenges of the past year, we were able to depend on your support. These partnerships continue to provide an essential foundation for IKEM's activities.

The task ahead is daunting – and the need for research into sustainable solutions is more urgent than ever. The past decade shattered temperature records, becoming the warmest in the history of systematic record-keeping. The next 10 years will be critical to the future of our climate. Announcing climate targets is no longer sufficient; the relentless warming of our planet demands the immediate implementation of concrete measures. Let us apply the insights gained from this extraordinary year to make lasting changes – to usher in technological innovations, restructure entire sectors and supply chains and make our own lifestyles more sustainable.



**Prof. Dr. Michael Rodi**  
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# Protecting our climate protects our freedom

## Interview with IKEM's managing directors

**2020 was an exciting year in many ways. The COVID-19 pandemic presented us all with enormous challenges. How did IKEM respond to the pandemic?**

to respond to changes quickly and flexibly during the pandemic. Fortunately, we had already integrated Microsoft Teams, SharePoint and other necessary infrastructure into our work processes. That made it much easier to make the sudden transition from working at IKEM to working from home.

**Simon Schäfer-Stradowsky:** That's true – I still remember how everyone pulled together in March 2020. The IKEM team came up with some original ideas that helped bring us all closer than ever over the past year despite the distance – ideas like an internal *IKEM Gazette* and a programme that randomly pairs IKEMers over Teams so they can get to know each other virtually. I'd say that IKEM's response to the pandemic was true to form – flexible, creative and full of team spirit!

**Susan Wilms:** The pandemic had a very sudden impact on all of us – we had to transition from on-site operations to home office almost overnight. But we all understood the need

**What are your main takeaways from 2020?**

**Susan Wilms:** One thing is clear: over the past year, we've had to do without a lot, break old habits and develop new ones. But the year also gave us new food for thought and opened up new opportunities. IKEM, like many other companies and organisations, experienced a significant increase in digitalisation over the past year and quickly made the shift to digital tools and digital spaces. As an institute dedicated to climate action, we were especially interested to see that video conferencing can replace a surprising amount of face-to-face communication. Moving forward, we'll be more likely to consider virtual meetings when we make plans for business travel, because it's clear that online meetings are replacing traditional business trips – and that will have a positive impact on the climate. Of course, in-person contact is still important in the world of work, which is why we rely on technological innovations that make business travel carbon neutral.

**Simon Schäfer-Stradowsky:** Yes, that realisation has definitely been important for us. We'll continue to increase our use of digital formats in the future. The innovation potential is enormous, and these formats open up completely new forms of participation. At the same time, I think there is a consensus among IKEMers that digital communication can never completely replace face-to-face contact! That's why we'll be very happy when the whole team can be reunited on-site, not just in front of computer screens.



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**Susan Wilms LL.M.**  
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**At the beginning of 2021, IKEM expanded its Management Team. What was the motivation for that?**

**Simon Schäfer-Stradowsky:** IKEM has been very successful with its work in recent years and has grown steadily – now we have almost 70 employees! We need to establish the structures required for an institute of our size. Susan Wilms

has had extensive expertise and done excellent work as a team lead and project manager, so she's the ideal person for this task.

**What goals do you hope to achieve together this year?**

**Susan Wilms:** We're working with IKEM's director, Prof. Dr Rodi, to create the IKEM Research Academy, which will bring together all of our activities in fundamental research, strengthen the international

exchange of expertise and offer support for young researchers in a systematic way. COP26, which will be held in Glasgow, is also on the agenda. As in past years, IKEM will organise side events and exchange ideas with other research institutions, decision-makers and civil society representatives. As far as IKEM itself is concerned, we'd like to continue to cultivate growth while maintaining the strong company culture and positive working environment that the Institute is known for. We want to implement HR software, optimise onboarding processes and offer more training opportunities for our employees.

**When it comes to climate change, are there reasons for us to be optimistic about the future?**

**Simon Schäfer-Stradowsky:** Environmental and climate lawsuits are becoming more and more important. Decisions like the ones taken by the Federal Constitutional Court – or by the Dutch court in the climate lawsuit

against Shell – could signal a turning point in policy-making. These decisions show that what matters is the principle that IKEM has stood behind from the very beginning – that policies to mitigate climate change expand freedom; they don't detract from it. That's not to say that there's no cost to climate action: changing our way of life and our economy is a monumental task, and it would be far easier to continue to rely on fossil fuels. But if we chose that path, our failure to act would limit the opportunities of future generations, and we'd rob them of the ability to live their lives as they choose. That's why climate action is a way to both protect freedom and drive innovation that will have a positive impact on the economy. This benefits all of us: it allows us to live together as a society and carry out our various economic activities in harmony with nature and the environment. It also improves our quality of life and preserves the planet.

**Susan Wilms:** The decision that was taken by the Federal Constitutional Court is very important to us. It makes the Paris Agreement constitutionally binding. Now it's crucial to see this decision translated into concrete measures. The federal government has been forced to act on climate policy. As we near the elections, it will be interesting to see how much attention climate change gets in party platforms and how much it influences the campaign.

# The Institute

The Institute for Climate Protection, Energy and Mobility (IKEM) is an independent research institute with over 10 years of experience in interdisciplinary research on climate change mitigation, law and economics. The purpose of the Institute is to advance the transition to sustainability in both policy and practice. IKEM's research facilitates the development of a legal, political and economic framework that reduces greenhouse gas emissions, expands renewable energy and promotes sustainable development.

IKEM is a non-profit registered association (VR 4972, Stralsund District Court) affiliated to the University of Greifswald. Since 2017, it has held Special Consultative Status with the United

Nations Economic and Social Council (ECOSOC). IKEM's Board of Directors determines the research priorities and strategic direction of the Institute. Prof. Dr. Michael Rodi is the director of research at IKEM and the chairman of the Board of Directors. The managing directors are Simon Schäfer-Stradowsky and Susan Wilms.

## Board of Directors

IKEM's Board of Directors consists of experts from various scientific disciplines, as well as consultants and entrepreneurs from the business community. In 2020, the members of the Board were:



**Prof. Dr. Michael Rodi**  
Chairman



**Prof. Christian Held**  
Deputy Chairman



**Dr. Friedrich-Wilhelm Hagemeyer**  
Treasurer

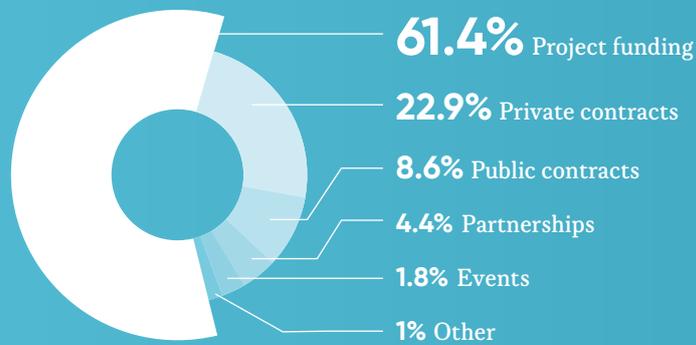
*Franzjosef Schafhausen completed his term of office on 14 March 2020. Dr. Christian de Wyl left the Board at his own request in October 2020 and since then has supported IKEM as a member of the Scientific and Strategic Advisory Board.*

# Financial overview

## 01

### Income

IKEM finances its research primarily through project grants. These are awarded through national and European funding programmes (61.4%) and/or made available through public (8.6%) and private contracts (22.9%).



## 02

### Turnover

In financial year 2020, turnover rose to around €3 million.



# 03

## Expenses



**57.8%**  
Personnel  
(projects)



**14%**  
Personnel  
(administration)



**10.2%**  
Office/Admin-  
istration



**7.6%**  
Subcontracts  
(funding programmes)



**7.2%**  
Subcontracts  
(private contracts)



**1.3%**  
Other



**1.1%**  
Events



**0.5%**  
Travel expenses



**0.2%**  
Interest  
on loans

# 04

## Personnel

At the end of 2020, IKEM had a total of **56 employees**, whose positions corresponded to approximately **43 full-time equivalents (FTE)**.



## Scientific and Strategic Advisory Board

The members of IKEM's Scientific and Strategic Advisory Board include experts from scientific disciplines, politics and non-governmental organisations, as well strategic partners from the business sector. The Advisory Board supports the Institute by

providing recommendations on various topics, including IKEM's research priorities and strategic orientation. The members of the Scientific and Strategic Advisory Board are:

**Prof. Christian Held** | Chairman

**Prof. Dr. Thorsten Beckers**

**Dr. Olaf Däuper**

**Jörg Müller**

**Prof. Dr. Barbara Praetorius**

**Prof. Udo Onnen-Weber**

**Dr. Rudi Rienzner**

**Jürgen Trittin**

**Prof. Dr. Friedbert Pflüger**

**Dr. Camilla Bausch**

**Dr. Volker Bühner**

**Manfred Greis**

**Prof. Dr. Joachim Müller-Kirchenbauer**

**Dr. Christian de Wyl**

**Alexander Voigt**

**Sabine Nallinger**

**Prof. Dr. Michael Sauthoff**

**Dr. Dörte Fouquet**

**Anders Hedenstedt**

**Prof. Dr. Rainer Speh**

**Dr. Manfred Vohrer**

**Dodo Vögler**

## Strategic partnerships

IKEM works closely with its strategic partners, who support the Institute's research and participate in joint projects. In 2020, IKEM's strategic partners were Becker Büttner Held (BBH),

Becker Büttner Held Consulting (BBHC), ENERTRAG, Kisters, Lumenion and Viessmann Deutschland. HH2E became a strategic partner at the beginning of 2021.



BECKER BÜTTNER HELD



## Support IKEM!

IKEM's research deepens public understanding of the energy transition, facilitates fact-based policy-making and promotes environmentally, economically and socially sustainable development. Your support makes our work possible.

Donations to IKEM help fund our groundbreaking research and increase the visibility of our work in publications and at events. IKEM is a non-profit organisation, which makes all contributions to us tax-deductible.

**Interested in a long-term collaboration with IKEM?  
Please contact us to learn more about becoming a strategic partner.**

## Contact

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IBAN: DE28430609671227180100  
BIC: GENODEM1GLS (GLS Gemeinschaftsbank eG)

Donations to IKEM are tax-deductible.  
For donations of up to €200, a bank record provided to the tax office is sufficient to claim the tax deduction. To request a donation receipt, please contact us at [info@ikem.de](mailto:info@ikem.de).

# Teams

IKEM's five interdisciplinary teams conduct research on specific challenges related to the energy transition. Their work on a variety of climate projects facilitates the development of a legal, political and economic framework that reduces greenhouse gas emissions, expands renewable energy and promotes sustainable development.



### Mobility Team

Innovative mobility concepts should help solve existing problems, not exacerbate them. IKEM conducts research on autonomous systems, artificial intelligence and digitalisation to accelerate the transition to sustainable mobility.



### Sustainability and Innovation Team

IKEM investigates innovative approaches to system transformation and develops original formats that communicate complex concepts in accessible ways. This mobilises support for sustainable solutions and extends the reach of IKEM's research.



### Energy Transition in Transport Team

IKEM examines key questions related to the integration of renewable energies into the transport sector. Its research on sustainable transport focuses on the development of infrastructure for charging points and filling stations.



### Energy Efficiency and Climate Finance Team

Achieving ambitious goals for energy efficiency and climate change mitigation will require significant investment in – and sustainable changes to – investment structures. IKEM develops strategies to optimise the mobilisation and allocation of capital.



### Energy Law Team

Transforming our energy system is an enormous task. IKEM facilitates the transition to a renewables-based system by issuing analyses, reports and recommendations to further develop the existing legal and political framework.





# Mobility Team



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Employees

12

Project volume

625,839 €

Projects

22

Mobility and transport are essential to economic development and social cohesion and are an important driver of innovation. But because the transport sector is also one of the largest sources of greenhouse gases, there is an urgent need to rethink mobility and develop solutions that reduce carbon emissions. The Mobility Team is taking on this challenge.

All mobility is regulated by law, whether we travel by air, water or land. That's why new concepts and innovations that impact existing structures and forms of mobility raise legal questions, not just technical or economic ones. The experts in IKEM's Mobility Team develop recommendations for legal modifications that will make mobility more efficient, flexible and climate friendly. Much of the team's work focuses on the ongoing expansion of autonomous systems, artificial intelligence and digitalisation. The team also explores topics related to heavy goods transport, electromobility and charging infrastructure, and examines sustainable mobility solutions for local public transit, walking and cycling in urban and rural areas.

One of the strengths of the Mobility Team lies in the diversity of its members. The lawyers, economists and political scientists in the team collaborate to analyse the overarching legal framework and develop legislative scenarios and interdisciplinary stakeholder models. The various approaches applied in these

fields complement one another: the team's lawyers examine existing laws and assess legal developments, while the political scientists and economists contextualise these within the political and economic framework. 'Lawyers aren't futurists,' says Mobility Team Lead Matthias Hartwig. 'We deal with the issues that matter today, with a focus on how technology influences the legal framework and vice versa.'

This interplay between law and technology is especially visible in the context of autonomous driving. 'A vehicle isn't autonomous because it chooses to be,' Hartwig explains. 'It's programmed based on applicable laws. If the existing legal framework doesn't leave enough room for innovation, there will be a gap between what is technologically possible and what the law allows.' He points to Germany's strict requirements for safety drivers as an example: 'someone always has to be on board, even in pilot projects in low-traffic industrial areas. That's one area where our legal framework puts the brakes on technological and regulatory learning.'

To remove these barriers, IKEM is developing recommendations for specific modifications to the legal framework, which are published in the form of research reports and position papers. As part of the AMELIE project, for example, IKEM has analysed technological solutions and issued detailed recommendations for the financing and billing methods used for electric road systems. The project – which is intended to integrate overhead contact-line lorries and the corresponding infrastructure into the existing transport system – is a source of particular pride for the Mobility Team. As Hartwig notes: 'if all of this makes its way into legislation, IKEM can claim to have played a significant role in crafting the law on the electric road system in Europe.'

## AMELIE

“We are decarbonising heavy goods transport.”

As part of the AMELIE project, IKEM is working with Siemens to develop a legal framework for the introduction of overhead contact-line lorries in Germany and across Europe. IKEM is contributing to the project by addressing legal questions related to various aspects of this process, such as the development of suitable planning procedures. It is also evaluating different billing systems and assessing options for the construction and operation of the required infrastructure.

Funding organisation: Federal Ministry for Economic Affairs and Energy (BMWi)

2018-2020 | Siemens Mobility GmbH

[More information](#)

## MUV – Maßnahmen zur Umwidmung von Verkehrsflächen

“We are transforming public spaces to promote environmentally sustainable mobility.”

The main objective of the MUV project is to develop guidelines that will allow communities to redesign public spaces for more sustainable use. To this end, project participants are analysing and evaluating examples of reallocation strategies implemented at national and international levels. The project focuses primarily on the transferability of these strategies to new contexts and the effects of such strategies on local economies. IKEM is analysing the legal requirements for measures aimed at reallocating and re-designing these spaces.

Funding organisation: Umweltbundesamt

2019-2022 | DLR, Planungsbüro PGV Alrutz

[More information](#)

## HubChain

“We are creating a legal framework for flexible and sustainable mobility in rural areas.”

The goal of the award-winning HubChain project is to increase the density, service coverage and flexibility of public transit networks in rural and suburban areas. IKEM is assisting project partners with ad hoc legal questions and providing expertise in autonomous driving. As part of its role in the project, the Institute is developing real-world business and operator models as well as simulated scenarios for new mobility options, which can serve as a roadmap for future projects.

Funding organisation: Federal Ministry for Economic Affairs and Energy (BMWi)

2018-2020 | Project consortium (5 partners)

[More information](#)

## Autonome und KI-Systeme

“We are adapting the legal framework to accommodate autonomous systems and artificial intelligence.”

An increase in automation poses challenges for our legal framework. Whether autonomous systems and artificial intelligence are usable in the future will depend on the legal conditions established today. IKEM is conducting research on key questions related to the legal framework for autonomous systems and artificial intelligence, particularly as these concern liability and product safety law. IKEM’s application-oriented analysis focuses on potential applications of algorithms and possible modifications to the law.

Funding organisation: Bundesanstalt für Arbeitsschutz und Arbeitsmedizin

2018-2021 | HFC, TÜV Nord Mobilität

[More information](#)

### Publications:

- Bahareva, Vizma; Eickelmann, Elias; Grunfelder, Julien: Maximising Mobility and Access to Services In Rural Regions – A Policy Guideline (MAMBA).
- Krampitz, Mathilde; Hartwig, Matthias: Eine Experimentierklausel für Kraftfahrzeuge mit autonomer, vernetzter und teleoperierter Fahrfunktion im StVG.
- Various articles in *REthinking Law*, 5/2020

The autonomous shuttles in our projects have already travelled over **1000 km.**



# Energy Transition in Transport Team



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Employees

9

Project volume

603,603 €

Projects

7

In the Energy Transition in Transport Team, researchers from different fields work together to study issues related to sector coupling, the integration of renewable energies into the transport sector, and the necessary infrastructure for charging and filling stations. This interdisciplinary approach ensures that the team's research incorporates different perspectives and can be used in practical applications.

The transition to alternative propulsion systems is already well underway. In the future, transit will be dominated by cars powered by electricity from renewable sources. The expansion of electromobility will require a well-developed, non-discriminatory public charging infrastructure that allows drivers to charge their electric vehicles at any charging station. Today, drivers of electric cars in Germany are still likely to find themselves unable to charge their car at a charging station or forced to pay more to charge it as a 'third-party customer'.

When it comes to electromobility, the keyword is interoperability. Not every charging station is the same: differences between authentication systems, variations in interfaces for

cross-provider data exchange, inconsistent information on operational readiness, a lack of clear information on tariffs, and long-blocked charging points are only a few of the challenges consumers encounter when they drive electric vehicles.

As part of the EU projects MEISTER and USER-CHI, IKEM's Energy Transition in Transport Team is developing solutions to overcome these challenges and ensure interoperability between charging networks across Europe. The team analyses impacts, framework conditions and barriers. In its work on practical projects – like the creation of an electromobility strategy for Bottrop – it develops recommendations for action and identifies specific areas that need improvement. 'Usability and barrier-free

charging must be the norm so that the use of electromobility can become widespread,' the team leads explain. 'That's what IKEM is working to achieve.'

## LaWoMa – Ladeinfrastruktur im Wohnpark Mariendorf

“We are integrating electromobility into strategies for local energy generation.”

The LaWoMa project combines theory and practice: the intelligent, energy-efficient and climate-friendly systems now operating in a residential area of Berlin-Mariendorf offer a sneak peek at the sustainable city of the future. The project links the energy strategy for the residential units to the nearby charging infrastructure for electric vehicles. As part of the project, IKEM conducted a stakeholder analysis and surveyed area residents to assess perspectives on and needs for electromobility. This enabled project participants to develop a plan for charging infrastructure that provides the greatest benefits to all stakeholders.

Funding organisation: Allego GmbH

2018–2020 | Gewobag AG, SenUVK

[More information](#)

## USER-CHI

“We are developing an infrastructure for electromobility that can be used throughout Europe.”

The goal of the USER-CHI project is to develop a platform for interoperable e-vehicle parking and charging systems across Europe. Project participants are defining the technical and legal requirements for the provision of publicly accessible charging infrastructure and developing proposals to ensure unrestricted usability in Europe. IKEM’s research for the project addresses ethical standards and data protection issues. The Institute is also conducting an impact assessment to evaluate economic, environmental and transport-related aspects of various options.

Funding organisation: European Commission (Horizon 2020)

2020–2024 | Project consortium (24 partners)

[More information](#)

## Electromobility strategy for the City of Bottrop

“We are preparing cities and municipalities to expand electromobility.”

Although the number of public charging stations in Bottrop is above the national average, most of the stations available to city residents are owned by private parties and located in garages or at workplaces. An electromobility strategy for Bottrop will help the city expand public charging infrastructure and accommodate greater use of electric vehicles. As a project participant, IKEM is identifying regulatory obstacles and providing recommendations to promote and accelerate the transition to electromobility.

Funding organisation: Federal Ministry of Transport and Digital Infrastructure (BMVI) through the funding programme ‘Nachhaltige Mobilität für die Stadt’

2020–present | BBHC, BBH

[More information](#)

## MEISTER

“We are evaluating electromobility solutions and analysing the legal framework for innovative e-mobility business models.”

The EU-funded MEISTER project addresses challenges associated with the introduction of electric vehicles. One of the main objectives is to develop interoperable solutions that minimise barriers to electric vehicle charging, integrate electric vehicles into different fleets and enable controlled charging. The project tests innovative and sustainable business models in three pilot cities: Málaga, Berlin and Stockholm. IKEM is leading the project’s evaluation activities and conducting an impact assessment that examines economic, environmental and transport-related factors. It is also analysing the legal and institutional framework conditions for an expansion of electromobility.

Funding organisation: European Commission (Horizon 2020)

2018–2022 | Project consortium (10 partners)

[More information](#)

### Publications:

- Feltes, Adrian; Blankschein, Maxim; Mercado, José: Innovative Quartierskonzepte im urbanen Raum – Praxisbeispiele für eine integrierte Energie- und Verkehrswende in Berlin, 2020.
- Schmidt, Julia; Nowack, Felix: E-mobility solutions: fostering urban e-mobility through smart park and charge, 2020.

Our team brings  
together experts from  
five different fields.



# Energy Law Team



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Employees

**16**

Project volume

**1,042,279 €**

Projects

**27**

We spoke with Energy Law Team Lead Bénédicte Martin about what she and her fellow team members are researching, why so many of their projects involve hydrogen and which laws they would change to combat climate change.

**In a nutshell, how would you describe your team's work?**

We study current legal issues related to the energy transition. Our research can take many forms. Sometimes we provide input in the form of an extensive study or report; sometimes we present our results in shorter statements or ad hoc papers. We also analyse the political framework – at the European level as well as at the national and state level. For example, we're developing recommendations for the implementation of the North German Hydrogen Strategy based on our analysis of the political framework.

**You're also involved in other hydrogen projects. Is hydrogen the energy carrier of the future?**

Hydrogen has the potential to be a clean energy carrier of the future – as long as it's *green* hydrogen. Our publication on hydrogen colour coding explains what that means. Green hydrogen can be used in very different ways – as an electricity storage system, as a

fuel or as a component in the production of other substances, like green ammonia.

Unfortunately, we still lack a lot of the necessary infrastructure to support these developments. Green hydrogen is still more expensive than grey hydrogen. Our legal framework should be modified to increase the burden on production that is harmful to the climate and reduce the burden on production that is climate friendly. Sadly, so far the inexpensive option has also been the option with negative effects on the climate.

**If your team had the authority to pass or amend a law, which law would that be?**

We don't think that any single standard can be viewed in isolation. The entire system of energy law would have to be adapted to align with our goals for climate change mitigation. There would need to be a more ambitious expansion of renewable energy and a general acceleration of sector coupling. The energy transition

would also need to advance more quickly in all sectors, especially the building sector. If we succeeded in each of these respects, we would have a chance of achieving our climate targets.

**What law would you pass or change at the EU level?**

Because of the EU's regulations on state aid, support schemes for green energy are very complex and somewhat bureaucratic. EU-level regulations could be simplified and made more dynamic. There also needs to be a more ambitious energy efficiency strategy. At the moment, there isn't much of a focus on energy efficiency and energy conservation in the energy transition – despite their enormous potential to help us achieve our climate targets. The 'best' energy is still the energy that isn't used!

## North German Hydrogen Strategy

“We are helping to create a green hydrogen economy in northern Germany.”

The federal states of northern Germany are developing a strategy to create a green hydrogen economy by 2035. IKEM is supporting the initiative by analysing the funding landscape and legal framework for hydrogen projects. In one report, for example, the Institute assessed whether and how federal states could introduce hydrogen-powered vehicles in compliance with their obligations under the European Clean Vehicles Directive. The Institute has also examined current regulations for the approval of hydrogen projects and collected information from project developers on their experiences.

Contracting organisation: Norddeutsche Koordinierungsgruppe Wasserstoff

2020–2021 | BBH, DLR

[More information](#)

## WindNODE

“We are designing the legal framework for the energy system of the future.”

The WindNODE project consortium consisted of more than 70 partners, who worked to develop model solutions for an intelligent and renewable energy system. IKEM assessed legal obstacles to the energy transition and examined how these could be addressed. Its studies also showed how renewable energies could be financed outside the EEG and which approaches were especially suitable to reform grid charges. IKEM takes particular pride in the SINTEG regulation introduced in 2017 to promote real-world testing environments for the energy transition, as this was largely based on preliminary work by the Institute.

Funding organisation: Federal Ministry for Economic Affairs and Energy (BMWi) through the funding programme ‘Smart Energy Showcase – Digital Agenda for the Energy Transition’ (SINTEG)

2016–2020 | Project consortium (70 partners)

[More information](#)

## Wärmenetze 4.0 in Moosburg

“We are showing how climate-neutral heating networks can contribute to sustainable heating.”

The Bavarian city of Moosburg an der Isar is working to expand and upgrade its local heating network to incorporate solar energy, bioenergy and waste heat for the building stock. The integration of renewable energy is intended to play a key role in decarbonising the heat supply. IKEM and its project partners conducted a feasibility study showing how the city can transform and expand its existing heating network. The study identifies different supply variants and examines the economic and regulatory conditions for the supply plan.

Funding organisation: Federal Office for Economic Affairs and Export Control (BAFA) through the funding programme ‘Wärmenetzsysteme 4.0’

2019–2020 | Fraunhofer IEE, dme-consult GmbH

## CAMPFIRE

“We are testing climate-neutral fuels for use in shipping.”

Ammonia can be produced through climate-neutral processes and is easy to store and transport due to its high density. It has the potential to decarbonise shipping by replacing heavy fuel oil and marine diesel. The goal of the CAMPFIRE project, which began in 2019, is to establish ammonia as an energy carrier and accelerate the transition to sustainable maritime transport. IKEM is contributing to the project by conducting legal studies on the framework conditions for the decentralised production of ammonia, the on-shore requirements for ammonia-based shipping, and the certification of ammonia-powered ships.

Funding organisation: Federal Ministry of Education and Research (BMBF) through the programme ‘Wandel durch Innovation in der Region – WIR!’

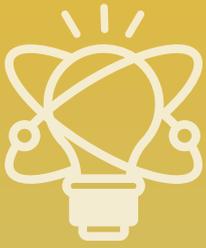
2018–present | Project consortium (40 partners)

[More information](#)

### Publications:

- Kalis, Michael; Langenhorst, Tim: Nachhaltigkeits- und Treibhausgaseinsparungskriterien für Wasserstoff Artikel, in *ZNER* 2020, pp. 72–78.
- Antoni, Johannes; Kalis, Michael: Grün vs. Grau – Begriff, Nachweis und Weitergabe der „grünen“ Eigenschaft erneuerbaren Stroms Artikel, in *ZNER* 2020, pp. 382–389.
- Schäfer, Judith; Wilms, Susan: Wasserstoffherstellung: Aktuelle Rechtsfragen rund um die Genehmigung von Elektrolyseuren, in *ZNER* 2021, pp. 131–135.

“EEG” appears over  
**500 times**  
in our publications from  
the past year.



# Sustainability and Innovation Team



**Anika Nicolaas Ponder**  
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**What makes the Sustainability and Innovation Team unique? How can we get people excited about the energy transition, and what is the relationship between climate activism and feminism? We discussed these questions and more with Sustainability and Innovation Team Lead Anika Nicolaas Ponder.**

Employees

9

**Your team is very interdisciplinary and international. How does that impact your work?**

Project volume  
**417,340 €**

Each team member brings different attitudes, values and skills to the table, which means that our team has many different perspectives that complement one other. This diversity generates a lot of creativity and a wide range of ideas and innovations. That's extremely useful in tackling the climate crisis, which is the greatest challenge of our generation. To accelerate the energy transition and mitigate climate change, we need new and diverse ideas. That's how we can make complex climate issues accessible and exciting for everyone. We also want to communicate the many ways people can participate in the fight against climate change.

Projects

7

**In your opinion, what does it take to get people excited about the energy transition?**

Scientific approaches are important, of course, and as a research institute, IKEM contributes to these in the form of reports and position papers. But getting the general public involved also re-

quires us to open up more accessible communication channels – like workshops, YouTube videos or neighbourhood meetings. Most importantly, we need to make sure that sustainable change is associated with positive images, not just with the message that we need to give certain things up. Our goal is to make the energy transition a topic that brings people together so that they want to be a part of this process and help shape it.

**You've been the head of IKEM Academy since 2011. What makes this event special?**

The goal of IKEM Academy is to bring together renowned researchers from all over the world so that they can exchange specialised knowledge about the effects of climate change and share innovative solutions. Since the event is very interdisciplinary and international, our discussions reflect many different perspectives, which helps produce innovative solutions to existing problems. That makes IKEM Academy a unique event.

**You also work on projects like EQT: Gender Equality Toolkit for Working Women and Friends, which is intended to fight sexism. What links do you see between climate activism and feminism?**

Climate activism and feminism have a common goal: to question how society thinks about things and how our economy operates. We believe that a sustainable society always goes hand in hand with a just society. The climate crisis reproduces social injustices, and because women are underrepresented in decision-making bodies, male perspectives are given greater weight. As a result, the realities of life and the interests of a large part of the population are disregarded. The goal of the Gender Equality Toolkit is to increase awareness of existing inequalities and encourage women to speak out and defend themselves against sexism.

## Just Transition Study

"We are facilitating a just transition in Lusatia and in other coal regions around the world."

As part of the WindNODE project, IKEM is developing concrete, practice-oriented recommendations for Lusatia and other coal regions around the world. The study assesses the role of various factors, including technologies, participatory formats, business models, policies and regulatory frameworks. A 'Just Transition Toolbox' developed in the course of the study will evaluate transition strategies and their feasibility. IKEM is also preparing a customised 'Energy Transition Roadmap' for Lusatia and a white paper with proposals for legal reforms.

Funding organisation: Federal Ministry for Economic Affairs and Energy (BMWi)

2019-2021

[More information](#)

## Wasserstoff Farbenlehre

"We are helping to create a sustainable hydrogen economy in Germany."

Hydrogen is expected to serve as an important energy carrier in the future. The gas, which is naturally colourless, is referred to by a specific colour to indicate the climate friendliness of its production process. The hydrogen colour-coding system is difficult to understand, and its application is not sufficiently regulated. One effect of this unregulated labelling is that environmentally harmful processes are cast in a more positive light. IKEM is bringing clarity to this debate with a study that describes the procedures already on the market as well as their impact on the environment. The study also presents options for binding certification processes.

Funding organisation: Energy Technology Cluster Berlin-Brandenburg

2020

[More information](#)

## IKEM Academy 'Energy and Climate'

"We bring renowned researchers together for an annual climate conference."

Due to the COVID-19 pandemic, IKEM Academy 2020 was held entirely online. This first-ever 'Digicademy', titled 'Climate count-down – the next phase of the energy transition', attracted 100 participants from 22 countries. Exciting presentations by internationally renowned experts covered a range of subjects, from the climate crisis to sector coupling, peer-to-peer trading and climate finance. Discussion groups and interactive formats allowed participants to examine these topics in greater depth.

Funding organisation: Lotto Stiftung

2004-present

[More information](#)

## BOWE2X

"We are researching the development of power-to-X technologies."

Offshore wind energy from the Baltic Sea has enormous potential to accelerate the energy transition and increase public acceptance of renewable energies. Remaining obstacles include the intermittency of wind energy and the location of offshore wind production sites in low-density areas far away from consumers. As a participant in the BOWE2X project, IKEM is helping to develop solutions centred around large-scale power-to-X technologies. The objective is to develop a strategy for a robust expansion of power-to-X in the southern Baltic Sea. This would allow excess energy to be converted into energy carriers like hydrogen, which could then be used in other sectors with no energy loss.

Funding organisations: Stiftung Offshore Windenergie (Germany), Forum Energii (Poland), Energy Agency of South-East Sweden (Sweden)

2020-present

### Milestones:

1. Presentation of the hydrogen colour scheme developed by IKEM as part of a study for the Energy Technology Cluster
2. Launch of the Just Transition website, which features profiles of several coal regions in transition
3. The Federal Ministry of Education and Research (BMBF) awarded the prize for social innovations to IKEM for its Energiewende-O-Mat.

More than **750 people** from 52 countries participated in our many workshops and webinars in 2020.



# Energy Efficiency and Climate Finance Team



**Dr. Aleksandra Novikova**  
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**2020 was a very busy year for the Energy Efficiency and Climate Finance Team. In addition to producing important research, the team found itself in high demand as guests at events. Team Lead Aleksandra Novikova is enjoying the challenge.**

Employees

**4**

**In a nutshell, what makes the Energy Efficiency and Climate Finance Team unique?**

We study the current trends in the fields of climate and energy and provide expertise on many different aspects of these developments. Our research examines the technological, economic, political and financial factors associated with energy sufficiency, energy efficiency and renewable energy integration, with a particular focus on energy-intensive sectors. What makes our work unique is that it builds a bridge between Western Europe and the rest of the Eurasian region. That allows us to facilitate an exchange of knowledge through cross-regional projects.

**What kinds of challenges and opportunities do you see for the energy sector in Central and Eastern Europe?**

When it comes to climate policy and a sustainable energy transition, many of the countries in these areas face significant challenges because of their traditional reliance on fossil fuels. This opens up opportunities for potential projects in the area, and we can help regional stakeholders build their capacity to

take part in these initiatives. That isn't always an easy task, but our team enjoys meeting challenges and seeing positive results.

**Your team analyses and evaluates funding opportunities for climate change mitigation. What kinds of challenges does that involve?**

Achieving our ambitious energy and climate policy goals will require major investments, and investment strategies will need to be aligned with sustainable criteria. Over the past few years, the European Commission has passed a comprehensive package of legislation to finance the energy transition, and it continues to work on laws that will increase the role of the financial sector in the shift towards a green and sustainable economy. In the next few years, we'll start to see these laws impact the policies and decisions of all Member States and produce spillover effects on countries outside the EU. As part of the broader trend towards sustainable investment that's already underway in certain countries, we expect to see a shift in investment portfolios and financial products over the next few years, as well as greater transparency in the disclo-

sure practices of businesses and the financial sector.

**What do you consider to be the highlight of the past year?**

There were two main professional highlights of 2020: the preparation of the IPCC Assessment Report and our work on the Climate Investment Capacity (CIC) project. Our findings from that project are cited in policy documents, such as national NDCs, and will influence the decisions of stakeholders who finance climate change mitigation measures. We were also invited to 25 events, and it's clear that there is significant interest in replicating the project in other countries. We can be very proud of that outcome.

Project volume

**158,464 €**

Projects

**5**

## Climate Investment Capacity (CIC2030)

"We are making investments more climate friendly."

Significant investment is needed for the implementation of the National Energy and Climate Plans (NECP) developed by the EU Member States. The CIC2030 project aims to adapt existing knowledge and experience in climate investment to national conditions in the three project countries: Germany, Latvia and Czechia. IKEM is assessing which investments are necessary to achieve the climate and energy goals for 2030. This know-how will equip stakeholders to invest in low-emission solutions, facilitating the implementation of national plans to reach 2030 climate targets.

Funding organisations: EUKI, BMU, GIZ

2018-2021 | CVUT, RTU

[More information](#)

## SNAPFI

"We are helping decision-makers implement Nationally Determined Contributions."

We are studying the implementation of Nationally Determined Contributions (NDCs) in five target regions: Brazil, the EU, India, Indonesia and South Africa. The goal is to use comparative analyses and an improved understanding of the interface between finance and political action to help decision-makers implement efficient mitigation and adaptation measures. This will decrease greenhouse gas emissions and strengthen development policies in the project countries.

Funding organisation: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)

2019-2023 | DIW Berlin

## IPCC Assessment Report

"Thanks to Aleksandra Novikova's role as a lead author, IKEM will make a decisive contribution to the Assessment Report."

The Intergovernmental Panel on Climate Change (IPCC) will release its Sixth Assessment Report in late 2021. The report summarises important scientific findings on climate change and provides recommendations for international decision-makers. For the second time, Aleksandra Novikova, head of the Energy Efficiency and Climate Finance Team, is serving as a lead author. In chapter 9 of the report, she writes about the role of the building sector in reducing greenhouse gas emissions.

## Energiewende im Sozialen Raum (ESRa)

"We are developing economic strategies to facilitate a socially just energy transition."

The success of the energy transition will depend on whether social and spatial challenges can be overcome. The Energiewende im Sozialen Raum (ESRa) project is examining Berlin and the Spree-Neisse district of Lusatia (Brandenburg) as case studies to identify why the transition benefits certain regions while disadvantaging others. Strategies to make transition-related processes as equitable and socially responsible as possible are then developed based on these factors. IKEM's primary role in the project is to develop financing options and regulatory proposals that will advance the energy transition in these two regions. The Institute is also examining findings from successful case studies for potential applications within the ESRa project.

Funding organisation: Federal Ministry for Economic Affairs and Energy (BMWi)

2020-2022 | Project consortium (3 partners)

[More information](#)

### Publications:

- Novikova, M., Olshanskaya, M., Dunkel, M. 2020. Lessons learned for international climate policy from the programming, implementation, and monitoring of the European Structural and Investment Funds in EU Member States. Berlin: IKEM, 2020.
- Olshanskaya, M., Novikova, A., Hoppe, J., Grigoryan, E. 2020. Evaluating the fiscal and environmental efficacy of debt-for-climate swaps: using global case studies to derive recommendations for countries of Central Asia and the Caucasus. Berlin: IKEM.

Team Lead Aleksandra Novikova read nearly **50 000 pages** for her work on the IPCC's Sixth Assessment Report.

# Annual conference

Climate change  
mitigation at the  
intersection of law,  
economics and politics



IKEM celebrated its 10th anniversary in March 2020 at a special annual conference, titled 'Climate change mitigation at the intersection of law, economics and politics'.

The event offered an opportunity for attendees to reflect on the valuable research – and enormous growth – that characterised IKEM's first 10 years. Speakers Sabine Nallinger (Stiftung 2 Grad and IKEM Advisory Board), Dr. Patrick Graichen (Agora Energiewende) and Jürgen Trittin (Bündnis 90/Die Grünen and IKEM Advisory Board) shared their perspectives on the evening's theme.

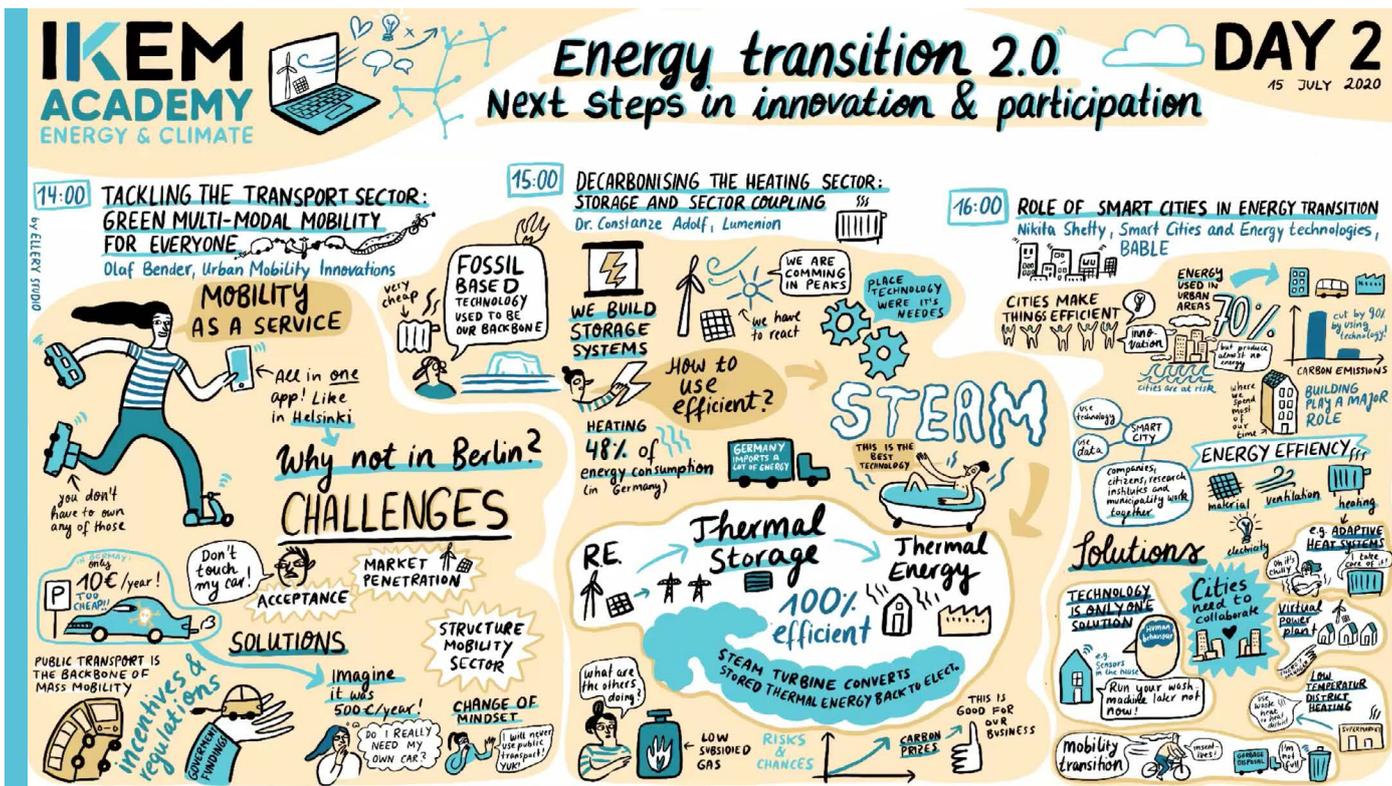
Prof. Dr. Michael Rodi, founder and director of IKEM, opened the event by highlighting one of the Institute's defining characteristics: interdisciplinary collaboration between researchers. 'At IKEM, there are lawyers who analyse the legal framework, economists who focus on economic issues and political scientists who study

the political process,' he noted. 'Our interdisciplinary approach allows us to develop a comprehensive understanding of the complex issues surrounding the energy transition.' Interdisciplinarity was a prominent theme at the conference: presentations addressed the economic factors associated with the energy transition, the criteria for good scientific policy advice, and the climate policy measures necessary for the coming decade.

To round off the evening, IKEM's own band, the Einstürzende Eisbärge, treated guests to songs from a range of musical genres – further demonstrating the Institute's interdisciplinary approach.



# **IKEM Academy** **'Energy and Climate'**



IKEM Academy 'Energy and Climate' is an annual multi-disciplinary forum designed to facilitate international dialogue and knowledge transfer. Due to COVID-19, the Academy was held online – and was still a huge success.

More than 100 participants from 22 countries logged on to exchange views on the current status of climate policy and discuss social, technological and economic approaches to decarbonise energy systems as quickly as possible. As in past years, the event brought together researchers, political decision-makers, and representatives of industry and civil society – as both speakers and participants.

Academy organiser Anika Nicolaas Ponder points to the advantages of holding the event online. 'The situation had a silver lining: because we transitioned to a digital format, we didn't have to limit the size of our audience, which meant we were able to welcome more participants than ever,' she said. 'We hope this trend continues at our next Academy, which will be held in July 2021.'

The three-day programme featured presentations on topics ranging from the climate crisis to sector coupling, peer-to-peer trading and offshore wind energy. Virtual discussion groups and interactive formats allowed participants to further explore the concepts and ideas introduced in the presentations.

# IKEM in detail

At IKEM, employees from very different backgrounds work together towards a common goal: combating climate change. The results of our staff survey offer a closer look at the Institute and its employees.

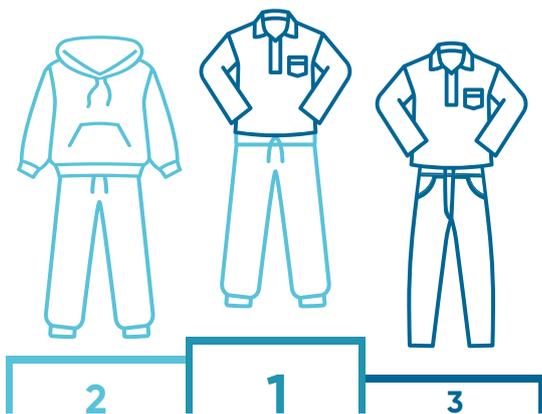
### Rating for the past year:



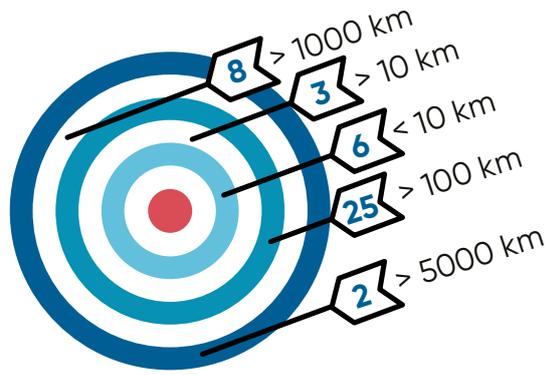
### Native languages:



### Home office outfit:



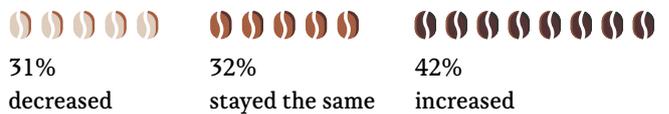
### Distance between IKEM and hometown:



### New hobby to stave off the corona blues:



### In home office, my coffee consumption has:



### Favourite recipes:

**Home cooking:** cheesy noodles, Spätzle with sauce, eggs in mustard sauce, mashed potatoes, vegan goulash with red cabbage

**Taste of the world:** lentil dal, Cuban bowl with avocado and mango salsa, Ful Medames (Egyptian fava beans with tahini), dumplings, garam masala eggplant curry, oven-roasted cauliflower, Shakshuka

**It's pasta-o'clock:** pasta with Gorgonzola, vegan mac and cheese, gnocchi with paprika-sour cream sauce, pumpkin pasta, sweet potato gnocchi, eggplant pasta, pork ragù with pappardelle

**For the sweet tooth:** vegan chocolate mousse, lavender cheesecake



**IKEM**