ABHISHEK DAS

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Interdisciplinary researcher specialising in energy transition, electricity regulation, policy, finance, and energy systems modelling. Combines academic, industry, and consulting experience to examine institutional, economic, financial, and social dimensions of decarbonisation. Integrates modelling with public policy analysis, focusing on just transitions, sustainability governance, and evidence-based decision support.

RESEARCH INTERESTS

- Energy Transition Policy and Governance
- Energy Systems Modelling
- Climate Policy and Just Transitions
- Electricity Sector Regulation and Institutions
- Behavioural Sustainability Transition Studies
- Economics of Decarbonisation
- Sustainability Transitions in the Global South
- Socio-technical Systems and Public Policy

ACADEMIC PROFILE

DEGREE	INSTITUTE/UNIVERSITY	YEAR
PhD	Indian Institute of Science, Bengaluru	2019 – 2026
MBA (Power Management)	National Power Training Institute, Faridabad, Ministry of Power, Govt. of India	2013 – 2015
B. Tech (Mechanical Engineering)	National Institute of Technology Karnataka, Surathkal	2006 – 2010

ELIGIBILITY & CERTIFICATION

- **GARP SCR, November 2024:** Earned the *Sustainability and Climate Risk (SCR) Certificate*, from the *Global Association of Risk Professionals (GARP)*.
- **UGC NET JRF (Management), December 2016:** Qualified for *Junior Research Fellowship (JRF)* and eligibility for *Assistant Professorship* in Management.

RESEARCH NETWORKS, COLLABORATIONS AND MODELLING INITIATIVES

- **Co-developer, IDEEA Model,** an Indigenous open-source energy modelling platform for India's low-carbon power sector transition planning.
- **RESET Network**, a Global South research network advancing just energy transition research, policy engagement, and knowledge exchange.
- **EDITS Network**, an IIASA-linked initiative on energy demand changes driven by technological and social innovations.
- **Sustainability Transitions Research Network (STRN)**, an international scholarly network advancing research on sustainability transitions.
- **NEST**, an early-career sustainability transitions network supporting doctoral and postdoctoral researchers globally.

DOCTORAL RESEARCH HIGHLIGHTS	
Title	**Modelling Social and Economic Impacts of Zero-Carbon Transition of the Indian Electricity System on the Coal-Thermal Value Chain: Identification, Quantification and Integration**
Supervisors	Dr. Balachandra Patil and Dr. Shashi Jain
Affiliation	Department of Management Studies, Indian Institute of Science, Bengaluru
Key Contributions	• Developed an indigenous electricity model for India's transition pathway analysis. • Proposed a framework to quantify socio-economic impacts of renewable transition. • Integrated transition costs into electricity system optimisation for policy planning. • Analysed impacts of decarbonization along coal-based thermal generation value chain. • Compared transition pathways to assess trade-offs between cost, equity, and emissions.

PROFESSIONAL & RESEARCH EXPERIENCE		
SMARTS Center, Asian Institute of Technology		
Designation	Postdoctoral Fellow Senior Research Associate	1 May 2026 – Present 01 December 2025 – 30 April 2026
Responsibilities	• Building global, national, and subnational future scenarios on energy demand, infrastructure, lifestyles, and wellbeing • Developing energy system transition models to support climate and energy policy work • Exploring zero-carbon pathways and transition challenges across power and other end-use sectors in South and Southeast Asia • Frameworks & databases to track transformative changes and benchmark scenarios • Engaging communities and sharing findings through articles, blogs, and Op-Eds	
PricewaterhouseCoopers Private Limited		06 July 2015 – 22 July 2017
Designation	Consultant	
Key Assignments	• Provided **regulatory advisory support** to MeECL and its generation, transmission, distribution, and system operation subsidiaries. o Prepared tariff petitions, true-up petitions, rejoinders, and regulatory responses; **cleared 3+ years of compliance backlog** within six months. o Represented the client in regulatory hearings, public hearings, and litigation support before **APTEL** and other forums. o Supported tariff approval for a delayed greenfield hydro project and assisted MeECL's participation in the **UDAY** scheme. o Prepared presentations for state and central governments on financial, regulatory, and performance matters. o Identified performance improvement measures, including **AT&C loss reduction** and collection efficiency enhancement. • Conducted regulatory due diligence for a small hydro acquisition and supported wind asset debt syndication.	
Coal India Limited		29 July 2010 – 21 July 2013
Designation	Assistant Manager (Electrical & Mechanical)	
Responsibilities	• **Headed the team for Operation & Maintenance** of all Electrical and Mechanical Machinery like Side Discharge Loaders, Belt Conveyor System, Tuggers & Haulage, Pumping Systems, Ventilation Systems etc in a semi mechanized underground coal mine of 1200 Tonnes per Day production capacity – **reduced downtimes by 18% in three months**. • Record keeping and preparation of performance reports. **Digitised the production logbook and record keeping process of the mine.**	

PROFESSIONAL & RESEARCH EXPERIENCE

- **Departmentally installed and commissioned** ~1.5km of conveyor belt system in an underground coal mine.
- Maintenance of power supply to the mine and its adjoining miners' colony through a 2.5MVA, 6.6kV/3.3kV/550V Substation and approx. 3km of associated overhead lines
- Maintenance of water supply to the adjoining miners' colony.

PUBLICATIONS

Journal Articles

- Firuz Ahamed Nahid, Pooja Sankhyayan, **Abhishek Das** and Joyashree Roy. ***"Fossil Fuel Lock-In vs. Clean Power: Pathways for the Developing Asian Region by 2050."*** Environmental Research Letters. Manuscript No. ERL-124682 [Under Review]
- **Abhishek Das** & Balachandra Patil. ***"Rethinking low-carbon energy transition with social and economic costs - A case of India's coal-thermal value chain."*** Environmental Research Letters. Manuscript No. ERL-124591 [Under Review]
- Tarun Sharma, Praveen P., **Abhishek Das**, & Balachandra Patil. ***"Planning for a net-zero future: Evolution of electricity system models."*** Annual Review of Environment and Resources. [In Press]
- **Abhishek Das** & Balachandra Patil. ***"A novel framework for quantifying techno-economic and social impacts of stranded coal value-chains: Validated with a decarbonising Indian electricity system."*** Energy and Climate Change. Manuscript No. EGYCC-D-25-00603 [Under Review].
- **Abhishek Das** & Balachandra Patil (2025). ***"Implications of electricity system transition on employment; the gainers and the losers: A systematic literature review."*** Renewable and Sustainable Energy Reviews, 219, 115870. https://doi.org/10.1016/j.rser.2025.115870.
- Oleg Lugovoy, …, **Abhishek Das** et al. (2021), ***"Towards a Zero-Carbon Electricity System for India in 2050: IDEEA Model-Based Scenarios Integrating Wind and Solar Complementarity and Geospatial Endowments"***. Energies, Volume 14, Issue number 21. https://doi.org/10.3390/en14217063
- **Abhishek Das**, Varun Jyothiprakash and Samridh Sharma (2021), ***"Impact of COVID-19 on Karnataka' s Electricity System – A Supply-Side Perspective".*** International Journal of Engineering Management, Humanities and Social Science Paradigm, volume 33, Issue number 1. ISSN (Online): 2347-601X.

Book Chapter

- **Abhishek Das**, Somen Dey (2021), ***"Forecasting Long-term Electricity Demand: Evolution from Experience-Based Techniques to Sophisticated Artificial Intelligence (AI) Models".*** In: Patnaik, S., Tajeddini, K., Jain, V. (eds) Computational Management. Modeling and Optimization in Science and Technologies, vol 18. Springer, Cham. https://doi.org/10.1007/978-3-030-72929-5_27.

Monograph

- Anoop Singh, …, **Abhishek Das** et al., (2019), ***"Regulatory framework for long-term demand forecasting and power procurement planning".*** Centre for Energy Regulation (CER), IITK; ISBN 978-93-5321-969-7

CONFERENCES

Presentations

- **Abhishek Das** and Balachandra Patil (2025), **"Transitioning Energy Systems and Transforming Lives: A Pluralistic Approach to India's Energy Transition"** – Oral presentation at the **10th Anniversary NEST Conference**, University of Sussex, Brighton, United Kingdom, May 2025.
- **Abhishek Das** and Balachandra Patil (2025), **"Rethinking Electricity Transitions: A Socio-Economic Accounting of Cost-to-Net-Zero"** – Poster presentation at the **10th Anniversary NEST Conference**, University

CONFERENCES

of Sussex, Brighton, United Kingdom, May 2025. [Poster presentation]

- Varun Jyothiprakash, Balachandra Patil, **Abhishek Das** and Samridh Sharma (2023), **"Modelling Electricity System Transition – a Comparison of Two Supply-mix Scenarios"**. 8th North American IEOM Houston Conference, Texas. [Second prize].
- Varun Jyothiprakash, Balachandra Patil, Samridh Sharma and **Abhishek Das** (2023), **"Developing and Validating Mathematical Model for Electricity System Transition Planning"**. 8th North American IEOM Houston Conference, Texas.
- Samridh Sharma, **Abhishek Das**, Varun Jyothiprakash, Oleg Lugovoy and Balachandra Patil. (2022). **"Tracking zero-carbon electricity pathways for a renewable energy dominant system: Model-based scenarios and techno-economic feasibilities"**. Fifteenth IAMC Annual Meeting, College Park, MD, USA. [Poster presentation]

Panellist

- ***Indian Zero Carbon Energy Pathways – IDEEA***. Special panel discussion at Twelfth INSEE Biennial Conference, 2024 at BML Munjal University, Kapriwas, Haryana, India.
- ***Open-Source Modelling of Energy System-Theory and Applications: IDEEA Model Application.*** Panel Discussion at ICUE 2022, Asian Institute of Technology (AIT), Thailand.

TRAININGS & WORKSHOPS

Conducted

- Trainer at ***Training session on an open-source energy modelling tool – "Indian Zero Carbon Energy Pathways (IDEEA)"*** at Indian Institute of Science (IISc), Bengaluru, India on 21 February 2023.
- Trainer at ***"Application of open-source IDEEA model for Karnataka electricity system"*** at GNEC-IIT Roorkee, Roorkee, India on 22 August 2023.
- Resource person at ***Open-energy System Analysis Training cum Workshop***. Department of Management Studies, IIT Roorkee, Roorkee, India on 2-3 September 2024.

Participated

- Attended ***"Indo-UK Capacity Building Symposium on Sustainable Energy Transition: Engineering, Entrepreneurship and Well-being"***, organised by Indian Institute of Technology Kharagpur, India and University of Birmingham, UK under the Scheme for Promotion of Academic and Research Collaboration (SPARC), on 8-12 July 2024.

SPONSORED PROJECTS

Indian Institute of Science, Bangalore

Title	**In**D**i**an Z**E**ro-Carbon **E**nergy P**A**thways (IDEEA)
Key Activities	IDEEA is an indigenous multi-stakeholder collaborative open-source generation capacity expansion model for optimising India's power sector growth and renewable energy transition. • Subject matter expert on the structure and operations of the Indian electricity sector. • Extracting relevant data from various primary and secondary sources and, cleaning and organising them. • Developing and validating an indigenous capacity expansion planning model for rationalizing India's electricity system growth, using R. • Development of various scenarios for zero-carbon growth in India to meet the sustainable objective. • Attending stakeholder meetings and preparing progress reports.

Indian Institute of Technology, Kanpur

Title	Centre for Energy Regulation (CER)

SPONSORED PROJECTS

Key Activities	CER is an endeavour towards comprehensive and sustained institutional strengthening in the Indian power sector, seed funded by the *Govt. of UK* and striven for enhanced academia-utility-regulatory interactions. • Was a part of the team involved in setting up the Centre. • Actively involved in the Centre's training programs and other activities as a resource person and facilitator. • Was a part of the editorial team CER's newsletter. • Envisioned and conceptualized the Regulatory Database module of CER.

FREELANCE CONSULTANCY

- Provided consultancy support to *Center for Sustainability, Policy and Technology Management (SusPoT)* and *Bhuvi Sustainability Private Limited (BHUVI)*.
  - Authored technology research briefs on topics like 'Sustainability and Climate Advisory Startup Ecosystem' and 'Climate-smart Water Technologies'
  - Prepared a disaster resilience handbook for India.
  - Conducted a study on Power purchase rationalisation of Rajasthan DISCOMs.

SUMMER INTERNSHIPS / PROJECTS

PricewaterhouseCoopers Private Limited	**25 June 2014 – 20 August 2014**
Title	Comparative Study of Determinants of Tariff and Trends in Retail Supply Tariffs across Indian States
Tata Bearings Limited	**05 May 2008 – 04 July 2008**
Title	Causes of defects in bore and track grinding machines in a semi-automatic production line

ACADEMIC PROJECTS

- PhD thesis titled, *Modelling Social and Economic impacts of Zero-carbon Transition of Indian Electricity System on Coal-thermal Value-chain: Identification, Quantification and Integration*, under the guidance of Dr. Balachandra Patil & Dr. Shashi Jain, Dept. of Management Studies, IISc Bangalore.
- Project titled, *Study of Distribution Franchisee in India*, at NPTI Faridabad.
- Study of *Effect of Conductivity of Mould Materials on Microporosity in Aluminium Castings* under the guidance of Prof. G.L. Datta, Dept. Of Mechanical Engineering, IIT Kharagpur.
- Designed an innovative *Rice Husk Cooker* at Dept of Mechanical Engineering, NITK Surathkal.

AWARDS/RECOGNITIONS

- Bagged **Second Prize** at the IEOM Simulation Competition at 8th North American IEOM Houston Conference, Texas.
- Received **Letter of Appreciation** from Meghalaya Energy Corporation Limited for exceptional service delivery in 2016.
- Received **Client Appreciation Award** from PricewaterhouseCoopers Pvt. Ltd. In 2016.
- Received **Letter of Appreciation** from the CMD of BCCL, a subsidiary of Coal India Limited for the all-round outstanding performance in the fiscal year 2010-11.

SKILLS & CERTIFICATION

- Technical Skills: R, Python, MS Office, Energy Modelling, Regulatory Accounting, Financial Modelling
- Research Skills: Literature Review, Data Collection & Cleaning, Empirical Research Methods, Technical Writing
- Certification: ***Finlatics Machine Learning Program***, hands-on experience in Python-based data preprocessing, supervised and unsupervised learning, and machine learning solution development.

LANGUAGES KNOWN

- English (proficient)
- Bengali (native)
- Hindi (proficient)
- Kannada (conversational)