

# Andrey Churkin

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Dear Committee Members,

With this letter, I want to express my willingness to join the XXXX Group, led by Prof. XXXX, and contribute to research on energy systems and smart grids at the University of Oxford. I believe that the recently announced position “Senior Research Associate in Energy Systems” suits my field of expertise and my vision of multidisciplinary research in energy systems. Please find details about my experience in the CV attached to the application. I mention my advisors and co-authors, Prof. Janusz Bialek ([janusz.bialek@newcastle.ac.uk](mailto:janusz.bialek@newcastle.ac.uk)) and Dr. David Pozo ([david.pozo-camara@ec.europa.eu](mailto:david.pozo-camara@ec.europa.eu)), as people who can confirm both my technical skills and personal strengths, and who can be contacted for recommendations.

The position at the XXXX Group appeals to me due to the following reasons. First, the group’s research projects focus on acute issues of energy networks decarbonisation and net zero transformation. I am interested in such projects as they are aligned with my research direction and career ambitions, e.g., I plan to become a leader in multidisciplinary research on smart grids, flexibility markets, and data-driven solutions for power systems. Second, I have found that the group leader, Prof. XXXX, and other researchers in the group are actively using similar concepts and models to those I explore in my research, such as multi-agent systems, data-driven optimisation, game-theoretic models for smart grids. These mutual research interests can lead to collaborations in developing novel models and solutions for energy systems, writing publications, and preparing grant applications.

As part of the team, I am willing to take the following responsibilities and tasks:

- I can contribute to the group’s research projects and lead interactions with research partners. I have relevant experience of collaborating with academic partners (e.g., within the EU’s Horizon 2020 ATTEST project) and industrial partners (I worked with Distribution Network Operators such as Scottish Power Energy Networks).
- I have experience of publishing in top-tier peer-reviewed journals (IEEE Transactions, Energy Economics, Renewable and Sustainable Energy Reviews) and am ready to take the leading role in publishing journal papers.
- To disseminate research findings, I plan to attend top conferences in power systems research and prepare tutorials and videos (I am currently developing a dedicated YouTube channel).
- My modelling and programming skills (Julia Programming, Python, MATLAB) can complement the group’s activities in continuous development of models for energy systems and complex data analysis.
- Finally, I aim to generate original research ideas and develop applications for research grants and fellowships.

I believe that my skills and experience can contribute to the research of the XXXX Group. As a Research Associate at the University of Manchester, I have been leading research of work package “Network planning tools” of the ATTEST project. As part of the project’s deliverables, I have developed network planning tools considering the integration of flexible and distributed energy resources. I am also working on my independent multidisciplinary research on flexibility markets and data valuation for active distribution networks. I have developed models for tracing, ranking, and valuation of aggregated flexibility in distribution networks, considering the effects of TSO-DSO coordination. In my research, I extensively use mathematical programming (LP, QP, MIP models) for finding optimal solutions in network planning problems and efficiently utilising flexible resources in distribution networks. Another essential component of my research is Game Theory, which I use to solve various allocation problems, analyse interactions of agents, quantify the value of data, assess the stability of cooperation, and propose valuation and pricing mechanisms. Finally, I have advanced skills and knowledge in power system economics, electricity markets, and data analysis, which I have applied in several academic research projects and industrial consultancy works.

I am happy to provide any additional information to support my application.

Sincerely,  
Andrey Churkin