



10 YEARS
EDF UK R&D
RESEARCH AND INNOVATION
TO HELP BRITAIN ACHIEVE NET ZERO

2012 - 2022



About EDF UK R&D

As a centre of technical excellence, EDF UK research and development is delivering research and innovation to help Britain achieve Net Zero.

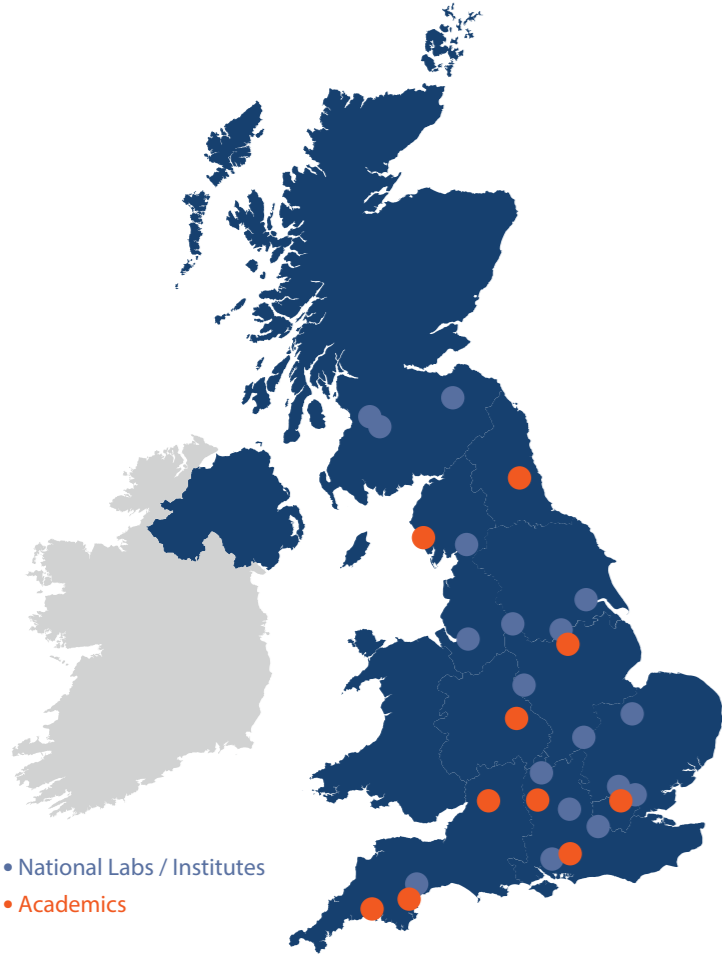
Established in 2012, the EDF UK R&D centre provides support to all business lines and subsidiaries of EDF in the UK in line with the EDF Group's Cap 2030 project and prepares the future for new business. A wholly owned subsidiary of EDF Energy, the R&D Centre is also an integral part of the EDF Group R&D international network, bringing the UK perspective to international collaborations.

Researchers of EDF UK R&D are driven by two goals: improving performance in all EDF UK current activities, and preparing for the energy future by exploring breakthrough technologies or business opportunities. As of today, our diverse and international team is engaged in R&D projects across all energy aspects including Nuclear, Climate Change, Offshore Wind, Energy Systems, Flexibility & Storage, Zero Emissions Mobility, Low Carbon Hydrogen and Smart Digital Technologies.

By coupling the advances in science and engineering with the emergence of new digital innovations and leveraging the UK ecosystem of Research and Innovation through strong and strategic partnerships, EDF UK R&D is delivering research and ground breaking innovations to our internal business units, policymakers, partners and customers in order to help Britain achieve Net Zero.



EDF UK R&D : a direct access to the ecosystem of Research and Innovation in the UK



Logos include: University of Glasgow, NUCLEAR AMRC, THE UNIVERSITY OF EDINBURGH, University of Strathclyde Glasgow, UNIVERSITY OF BIRMINGHAM, The University of Sheffield, Cranfield University, UNIVERSITY OF OXFORD, HERIOT WATT UNIVERSITY, NATIONAL NUCLEAR LABORATORY, Lancaster University, UNIVERSITY OF HULL, University of Reading, MANCHESTER 1824 The University of Manchester, Loughborough University, Supergen, UCL, British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL, Met Office, SMART ENERGY RESEARCH LAB, Imperial College London, CATAPULT Energy Systems, CATAPULT Offshore Renewable Energy, University of BRISTOL, UNIVERSITY OF SURREY, UNIVERSITY OF EXETER, UNIVERSITY OF Southampton, NATIONAL OFFSHORE WIND RESEARCH & DEVELOPMENT CONSORTIUM.



Damitha ADIKAARI
Director - Science & Innovation for Climate & Energy at Department for Business, Energy and Industrial Strategy (BEIS)

The Government has set out ambitious aims for the UK – both the public and private sectors – to invest more in R&D and innovation, which will help drive our progress towards Net Zero. We welcome EDF’s increasing focus on supporting new technologies and business models, and expanding its UK R&D team who have successfully won funding competitively for several projects under our £1bn Net Zero Innovation Portfolio. Congratulations on your 10 year anniversary!”

FOREWORD



Patrick DUPEYRAT
Director of EDF UK R&D since 2020, member of the EDF Group Innovation Board

Research, development and innovation are at the heart of EDF UK.

We are very pleased this year to celebrate the 10th anniversary of EDF UK R&D. It is an opportunity for us to thank all those who have supported the EDF UK R&D Centre over the years. First of all a huge thanks to our highly motivated staff members, for their genuine commitment, thanks to the previous directors of EDF UK R&D for their vision and ambition, thanks to our businesses at EDF UK or EDF R&D, represented by our very supportive board members, for the trust and endorsement shown and thanks to all our partners with whom we have jointly enriched our research projects over the years.

Clearly, without you, EDF UK R&D would not have become what it is today! Starting with a very small decentralised team of a few expatriates, even before the EDF UK R&D Centre was legally established, it became a rapidly well-established central part of the EDF Group R&D and Innovation wider community with the intention of creating a docking point to enhance synergies between EDF UK and EDF Group in the field of R&D and Innovation. The Centre also progressed during the last decade, to become a recognised R&D entity of EDF in the UK, delivering research and innovation to all business units and subsidiaries of EDF in the United Kingdom. Finally, it became the most direct access for EDF to the ecosystem of Research and Innovation in the UK, leveraging the world leading excellence of UK Universities and labs, facilitating access to government funding, promoting EDF UK’s views and helping EDF’s reputation and credibility in the UK.

Today, EDF UK R&D is a very diverse R&D team of more than 80 talented admin staff, PhDs and researchers of various backgrounds, experiences and origins with multiple skills including engineering, data science and commercial innovation. We remain strongly connected to the business units through efficient co-location for example, Hove, London or Barnwood, EDF UK R&D is now focusing its efforts in four research areas, reflecting the activities and priorities of the business. In Nuclear, in support of Nuclear Generation, HPC or NNB and EDF R&D in France, bringing years of expertise in modelling and simulation through our joint centre in Manchester, in Natural Hazards and Environment, leading the R&D programme for Waste and Decommissioning and exploring Energy Hubs and new reactor technologies. In Renewables, supporting EDF R&D, EDF Renewables UK and worldwide in Storage, Hydrogen and in particular offshore wind where the EDF UK R&D is leading the R&D activities for the entire EDF Group. In Customers, supporting our customer business in UK and France, particularly in Energy Systems, Flexibility, Zero Emissions Mobility or low carbon heat. And finally, Digital, with a strong focus on Artificial Intelligence and Applied Data Science to accelerate the digital transformation of all our businesses.

We are looking forward to continuing exploring ground-breaking innovations and delivering research to EDF R&D, internal business units, policymakers, partners, customers and having an impact in order to help Britain achieve Net Zero!
Let’s take this as an occasion to celebrate!

Message from EDF UK R&D Board of Directors



Paul SPENCE

Director of Strategy and Corporate Affairs of EDF UK, Member of the EDF UK Executive Team and Chairman of the board of the EDF UK R&D Centre

I'm privileged to chair the EDF UK R&D Board, which is made up by 3 directors from EDF UK and 3 from EDF France. This board has been the main governance body for EDF UK R&D for 10 years, supporting and managing its development.

Each meeting has a fascinating agenda illustrating the value that EDF UK R&D brings. This mixed UK/France Board reflects the broader links that run through the whole of EDF UK R&D, with projects delivered in the UK to support R&D France ambitions as well as the needs of local business units. By being co-located and working closely with the business units in EDF UK, and connecting with the local academic ecosystem, EDF UK R&D can bring fresh perspectives to EDF in France, the UK, and in other international markets.

EDF UK R&D's success is built on its people and culture, with a talented, international and increasingly diverse group of people working together in an open and collaborative atmosphere, building successful internal and external partnerships. We also have many great examples of individuals who have started their career in R&D before moving on to other business unit roles either in the UK or France.

I am sure that the next ten years will be even more successful for EDF UK R&D. With the acceleration of Net Zero ambitions in the UK and worldwide, their innovative and flexible approach will continue to bring huge benefits internally and externally. There are some unique challenges and opportunities associated with the UK context – such as the dominant contribution that offshore wind is expected to make to the future electricity mix, the increasing need for flexibility, the adoption of digital solutions and the commitment to the development of a range of new nuclear opportunities. EDF UK R&D will have a critical role in innovating to meet these challenges and in feeding back experiences to the Group, where similar challenges may emerge in future years.

Earlier this year EDF UK R&D launched its new purpose as "Driving Research and Innovation to help Britain go beyond Net Zero" – reflecting both EDF Group and EDF UK's role. We all look forward to supporting them to continue to deliver this vision!

EDF UK R&D Board Members

Jacques Sacreste – Director for International & Finances at EDF R&D

Carmen Munoz Dormoy – Director for Sales & Marketing, Renewable Energies, Energy Management and Networks R&D Programs at EDF R&D

Alain Le Gac – Director for Engineering and Generation R&D Programs at EDF R&D

Paul Spence – Director of Strategy & Corporate Affairs, EDF UK

Richard Bradfield – Chief Technical Officer at Nuclear Generation, EDF UK

Rich Hughes – Director of Sales and Marketing, Customers, EDF UK

Simone ROSSI CEO of EDF UK



Simone ROSSI

Chief Executive Officer of EDF UK and a member of the Executive Committee of EDF Group

At EDF UK, we aim to help Britain achieve Net Zero by investing in zero carbon electricity from wind, nuclear and solar and helping customers to reduce their carbon footprint.

In 2050, almost half the reductions in CO₂ emissions are expected to come from technologies that are currently at the demonstration or prototype phase. Our engagement today with universities/businesses in the field of R&D and innovation is crucial to bring these new technologies to market in time.

I am very proud to say that our EDF R&D UK Centre was set up for that purpose ten years ago in order to deliver research and innovation to support all EDF UK Business Units and subsidiaries in a cost effective and agile way, incubate future opportunities and where appropriate leverage public funding.

The R&D Centre started its work in 2012 and has grown steadily to its current size of about eighty scientific, administrative and technical staff members (incl. PhDs), making it a pillar of EDF Group - EDF UK co-operation.

I have seen over the years an ever more pragmatic approach, getting closer to the business units, closer to what we are trying to achieve as a business. This includes the work EDF R&D UK is doing not only to support our AGR fleet but also develop future opportunities around Advanced Modular Reactors or Low Carbon Hydrogen.

Thanks to many connections to the ecosystem of research and innovation in the UK including academics, national institutes, BEIS and supply chain partners, the R&D teams have secured funding for a number of important initiatives. Recent successes include projects on long duration storage and in the Heat Pump Ready Program which fits very well with our Customers UK strategy. It shows a strong commercial awareness and helps at the same time, to promote EDF UK's insights to academia and policymakers.

I would like to mention how important it is to me that the EDF R&D UK Centre acts as well as a two way conduit to increase synergies with EDF Group and would like to thank Bernard SALHA and his team for the support of UK R&D activities over the years.

Finally, I would like to congratulate the R&D team for all the achievements and successes over the last decade. I am very happy to celebrate the 10th anniversary and wish a lot of success for R&D in the years to come to deliver research and innovation and lead the way in helping Britain achieve Net zero!

Bernard SALHA EDF R&D director and EDF Group CTO



Bernard SALHA
EDF R&D director and
Chief Technical Officer
of EDF Group

Modelling and Simulation for the UK Nuclear fleet, Natural Hazards and Climate Change, Nuclear Waste and Decommissioning, Offshore Wind, Flexibility & Storage, Artificial Intelligence and Applied Data Science, all these terms represent a new area of research and innovation and have progressively become priorities during the first 10 years of EDF UK R&D. Integrated Energy Hubs, Low Carbon Hydrogen, Zero Emissions Mobility, and Heat decarbonisation also complement the above list.

The EDF UK R&D Centre kept its initial promises: supporting all business units and subsidiaries of EDF in the UK on their everyday challenges/operations and explored with them future business opportunities. EDF UK R&D Centre delivered on building a bridge between France and the UK, with different energy systems, policies, regulation and mindsets: a bridge first, to enhance synergies between EDF UK and EDF Group in the field of R&D with a specific agreement providing access to EDF UK R&D Center team to EDF R&D know how; but also a bridge between EDF Group and the local ecosystem of research and innovation in the UK, in particular with the University of Manchester, one of EDF R&D's strategic academic partners.

From early stage research concepts, EDF UK R&D has rapidly moved to real projects and innovations close to the market or deployed in the business. I would like to illustrate with concrete examples: using code and standards developed by EDF R&D, EDF R&D UK delivered very important AGR hot box dome simulation, with a design being successfully deployed to nuclear generation with great benefit for the business. At the fore front of R&D activities on offshore wind, EDF UK R&D was the lead of the project that ultimately resulted in the demonstrator of Blyth which generated a lot of practical knowledge and experience now benefiting the whole of group, in France, US, China etc... From voice recognition to quantum computing or machine vision, EDF UK R&D has also investigated and deployed over the years cutting edge digital technologies to accelerate the digital transformation of our businesses. EDF UK R&D also delivered major projects related to EV such as V2Go & SMILEY, recently developed the very first nuclear H2 project for the group and this year has been awarded with several BEIS backed projects in the heat pump ready program or long duration storage.

EDF R&D UK Centre has been well positioned on new and important topics for EDF UK and EDF Group from the beginning and the several "Trophées de la R&D" awards received by the EDF UK R&D centre are a good recognition of this.

The future of the EDF R&D UK Centre is now, after these first 10 years, in a very dynamic context in the UK, to continue having strong links with the local business units and subsidiaries and in a strong position to continue supporting their transformation. EDF UK R&D will need to continue to leverage the local ecosystem of Research and Innovation and enhance synergies with EDF R&D, to transform research results into impactful innovations deployed on the market/in the business and to continue exploring research areas linked to UK energy system specificities, a renewables dominated system with limited support from Europe to balance weather variability, the importance of storage and flexibility, a growing role of H2 and CCUS and the continuum in Nuclear, from decommissioning to new build.

All of that to deliver research and innovation to support EDF Group ambition for Net Zero.

Jean Benoit RITZ Former director of EDF UK R&D



Jean Benoit RITZ
Former director of EDF UK R&D
(2012-2015) and Former director
of EDF UK R&D Board (2015-2020)

10 years already, what an amazing journey!

It was a privilege and a great honour for me to lead the R&D UK Centre for three years as the first director of the centre and then sitting on the board for 5 years.

I still remember the day when we created the R&D UK Centre in 2012. We were just a handful of people (9 to be precise) very enthusiastic and delighted by the mandate offered by Vincent de Rivaz and Bernard Salha to build a R&D function and to provide the most relevant R&D services to EDF Energy and to EDF Group from the UK.

Today, I am impressed by the relevance of the topics we have chosen years back supported by the board of the centre led by Paul Spence: low carbon generation with Nuclear and Offshore wind, Smart grid and flexibility, Smart meter Data and Digital to promote energy efficiency, decarbonisation of Heat with Heat Pumps and transport with EV. So consistent with the ambition of the Group to help to be net zero in 2050 and, over the 10 years, the UK centre contribution has been instrumental with many recognised successes, patents and awards. In addition, we've successfully found our place in the UK R&D ecosystem by collaborating with key universities and public institutions.

As always people are central. It is rightly said that it doesn't matter where you go in your life, but what matters the most is who you have beside you all the way. I think we have had remarkable people with equally high aspirations and dreams, working hard, humble and nimble and they have made this journey possible. And at the same time, this centre has been a great place to work, to learn, to enjoy, to grow-up in a fantastic environment of excellence and value creation. The various and impressive positions occupied today by our alumni are demonstrating how rewarding this experience at the UK centre is.

It's a matter of great pride to see the centre continuing to develop, reaching its maturity under the direction of Xavier and then Patrick, able to adapt to the current context, embracing new technological discoveries, innovating and achieving more than what we have ever thought of.

Keep innovating, keep delivering value for the Group and keep celebrating!

Xavier MAMO Former director of EDF UK R&D



Xavier MAMO
Former director of EDF UK R&D
(2015-2020)

Vibrant and brilliant are the two words that come to my mind when I reflect back on the five years I spent leading EDF UK R&D.

Vibrant because of the speed and agility of the different teams to anticipate, adapt, and adjust to be on the verge of technical expertise and innovation, while remaining a very valuable asset for their customers (UK operational business, Group R&D, external partners) in a challenging environment.

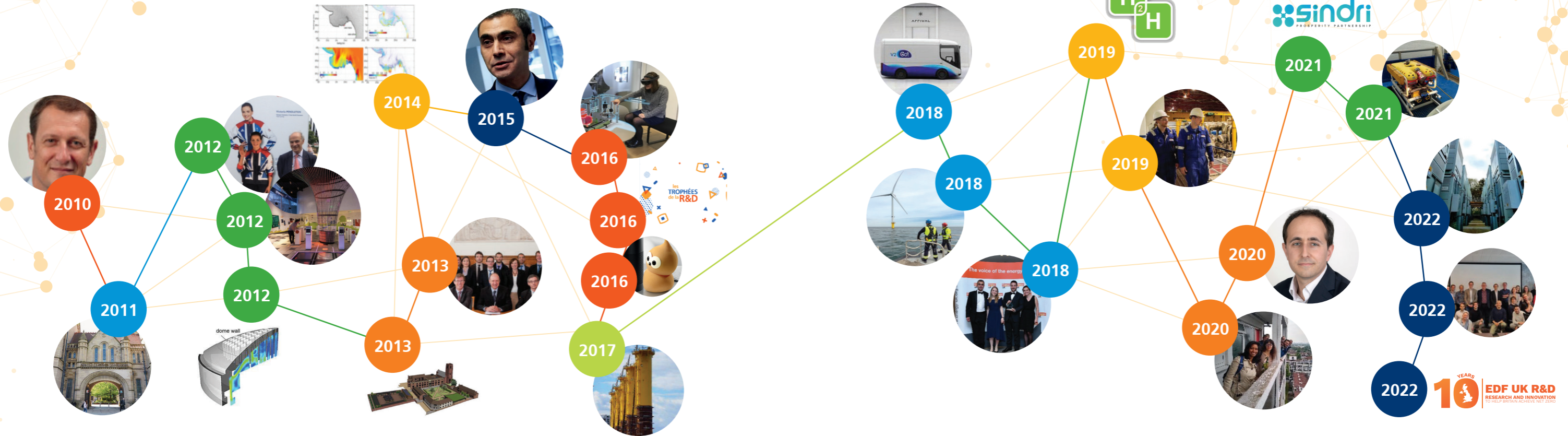
Brilliant because of all the successes the teams have achieved over the years, delivering on time, budget and quality projects that have helped the business move forward and generate further value for the Group in a very vivid, competitive, and fast paced UK market.

This is what I call "local delivery of global value"!

It has been an honor to lead this international, diverse and highly talented team and a fantastic experience to develop and scale up activities, expertise and areas of operation, building on the strong foundations my predecessors had created. I am particularly proud of the external visibility and recognition the EDF UK R&D has gained over time, supporting EDF UK strategy in nuclear, renewables and customer activities, through the delivery of innovative projects relevant for the energy sector, the society, and to help Britain achieve Net Zero.

But above all, I believe the value of EDF UK R&D lies with its very talented people, individuals sharing their expertise, experience, commitment, passion, values, and ideas to grow and develop the whole team. I feel very grateful to have personally benefitted from such an exposure and I am convinced that this will ensure EDF UK R&D successful endeavors for the next 10 years!

EDF UK R&D throughout the Years



2010

Appointment of Jean Benoit Ritz as R&D director

2011

Establishment of the Modelling and Simulation Centre with Manchester university

2012

Official legal establishment of the R&D UK Centre: 100% owned EDF Energy subsidiary, Joint governance with EDF Group

Olympic games: design of the pavilion experience and augmented reality

Nuclear: Hot box dome successful design

2013

MoU with the university of Manchester (January)
First of a king Geosolar Heat Pump at Cannington Court EDF Campus

2014

New Nuclear: first R&D projects on extreme weather events and climate change

2015

Appointment of Xavier Mamo as R&D director

2016

Co-location of the digital innovation with BlueLab @Hove
EDF UK R&D gets its first 2 "Trophées de la R&D" Awards which will be followed by several others in the following years

Development and launch of one of the first UK Alexa services, making EDF the first energy supplier in the UK to offer such services to its customers

2017

Creation of the Renewables team dedicated to offshore wind
Completion of the FSFound project (Float & Submerge Gravity Base Foundation)

2018

'V2GO' large scale demonstration of V2G charging in Oxford awarded by the government

Inauguration of Blyth demonstrator by JB. Levy and B. Bensasson
Energy UK Team of the Year award for smart customer (Grid Energy Management)

First 2 UK centre researchers obtain the distinction of "R&D Group Experts"

2019

EDF's first Hydrogen project in the UK delivered (H2H)
Launch of EDF UK Waste and decommissioning R&D program

2020

Appointment of Patrick Dupeyrat as R&D director
Completion of Community+ Urban energy club project in Brixton

2021

SINDRI project awarded to develop cutting-edge digital technology for nuclear plant design and assessment

New and co-governance of R&D nuclear activities between EDF UK R&D and Nuclear Generation

Autonomous underwater drone inspection at Blyth Offshore Wind Farm

2022

£2 million in funding for EDF UK from BEIS to support long duration storage projects

First hackathon in person after the pandemic

EDF UK R&D celebrates its 10 years anniversary



Celebrating the people

notable alumni



Federico d'Amico

Federico was part of the Renewables team from 2014 to 2018 as a Renewables Research Analyst. He is now Chief Financial Officer, Asia – EDF international division.



Simone Sullivan

Simone joined in 2017 as the Programme Manager for R&D she left us in 2020 to go to Pivot Power as the Portfolio Development Manager.



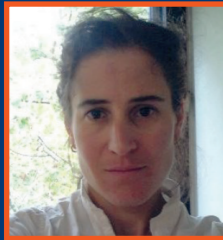
Laure Pellet

Laure was part of the Nuclear team from 2011 to 2014 as Modelling and Simulation Manager in Manchester. She is now Head of Department LNHE at EDF R&D.



Emma Chieusse-Gérard

Emma was a VIE in the Zero Carbon Applications team from 2020-2021, joining just a few weeks before the UK's first lockdown! She now works as an Engineering Consultant in the Urbanomy team in Paris.



Yahelle Laroche

Yahelle was at the R&D UK Centre from 2016 until 2018 as the SMR Pre-licensing Lead. She is now the Safety officer at EDF/DIPNN/DT.



Hugo Hermann

Hugo was one of the first Offshore Wind Engineers joining R&D in 2013. In 2019 Hugo left and is now the commercial and technical lead at Power Shift.



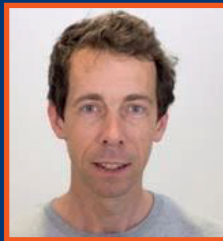
Dominique Bertin

Dominique was part of the Smart Customers team until 2018 as the Smart Energy Applications Manager. He is now Head of the Ecological Transition department at Enedis.



Jean-Francois Hullo

Jean-Francois joined us in 2017 as a Generation Lead & VR Expert he was with us until 2020 and is now Head of Data, Analytics and Reporting at EDF DOAAT.



David Ferguson

David joined EDF in 2004 and was notably the Head of Digital Innovation from 2016-2019. He is currently Head of Digital Innovation China.



Thibaut Possompes

Thibaut was a VIE then Lead Data Scientist at EDF Energy Customer. He is currently working in the Sales & Marketing team at EDF UK.



Ellen Pavageau

Ellen was Head of the R&D Renewables team until July 2018. She is now Cheffe de service Comportements Machines at EDF in Grenoble.



Regis Nhili

Regis was the Head of Low Carbon Generation R&D from 2010-2014. He is now Deputy director of EDF Direction Industrielle.



Camille Roux

Camille joined us in 2017 as a VIE she then went on to become a Global Energy Systems Engineer for us before leaving in 2019 and is now a Power Systems Engineer for EDF.



Florian Briard

Florian was an Offshore Wind Research Engineer at R&D from 2015-2018. He now works as a Risk Manager on NnG Offshore Wind Farm at EDF Renewables UK&I.



Benjamin Mousseau

Benjamin was the Smart Energy Applications Manager within the Smart Customers team from 2018- 2020. He is now CTO & Partnership Co-Founder of Urbanomy.



Ionel Nistor

Ionel was the Head of R&D Nuclear from 2018-2021. Ionel is now the Technical Director SZC NI at Advance.

EDF UK R&D Alumni

350+ Alumni over 10 years • 18+ different nationalities

EDF UK R&D Team throughout the years



Meet the current EDF UK R&D Team!





10 YEARS
 **EDF UK R&D**
RESEARCH AND INNOVATION
TO HELP BRITAIN ACHIEVE NET ZERO

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