

Meet the Engineer IET Young Professionals

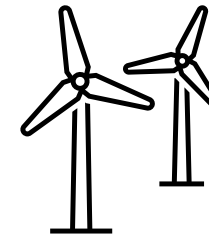
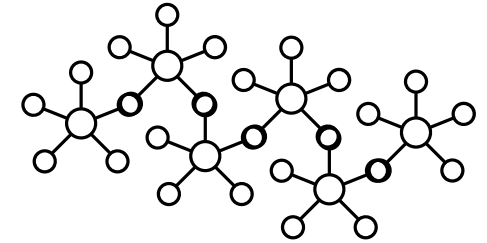
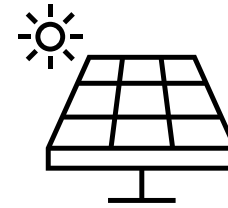
Julio Perez Olvera

My journey

2014

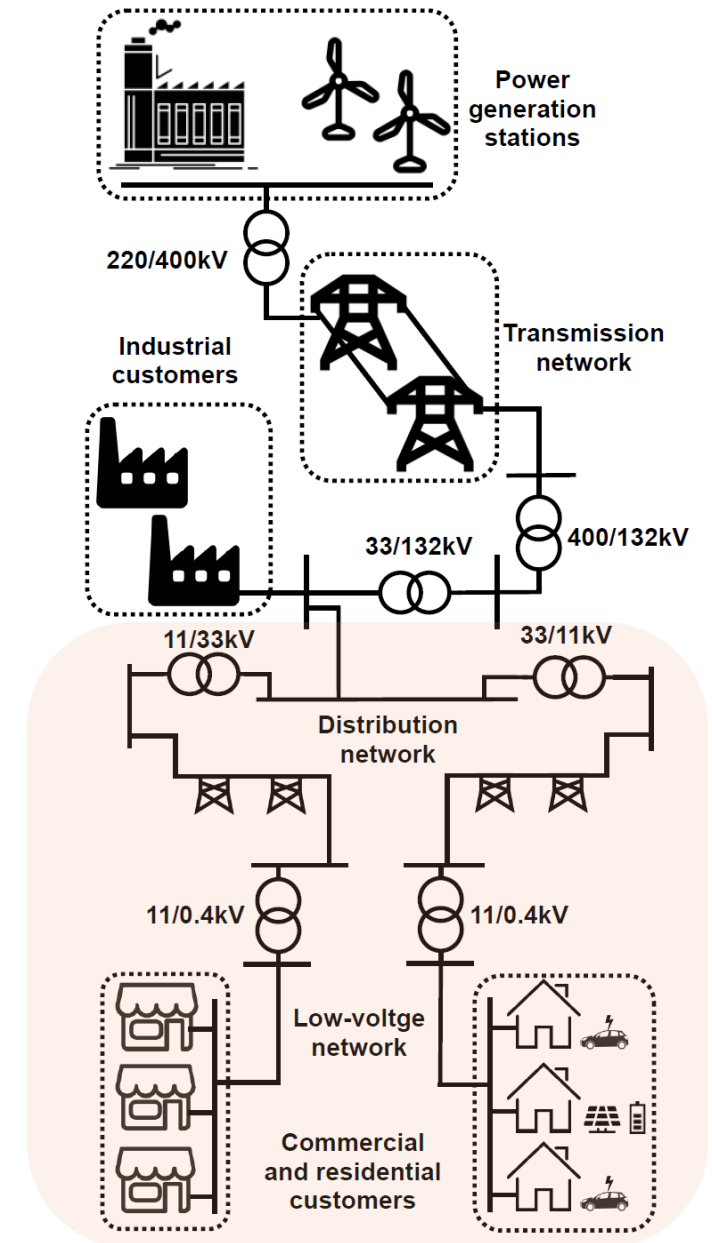
- Mechanical and electrical engineer
- Interest in **renewable energy (wind and solar PV) and electric systems**
- **Internship at Abengoa**, a developer of wind farms and solar PV plants
- **MSc at University of Birmingham** to study **Power Systems** in more depth, final project on microgrids
- **PhD at Imperial College London** focused on distribution networks and **the integration of low-carbon technologies**
- Technical Officer at **Repowering London**
- Power System Consultant at **Hitachi-ABB**
- Distribution System Planner at **SSEN**

2021



PhD in Power Systems

- Researched different ways of integrating low-carbon technologies into distribution networks
- Built realistic network models (digital twin)
- Investigated the impact of rooftop solar PV and EV chargers
- Proposed active network management schemes to control the power flows
- Participated in innovation projects from industry
- Analysed data from several substation in Southwest England
- A lot of MATLAB and Python programming!



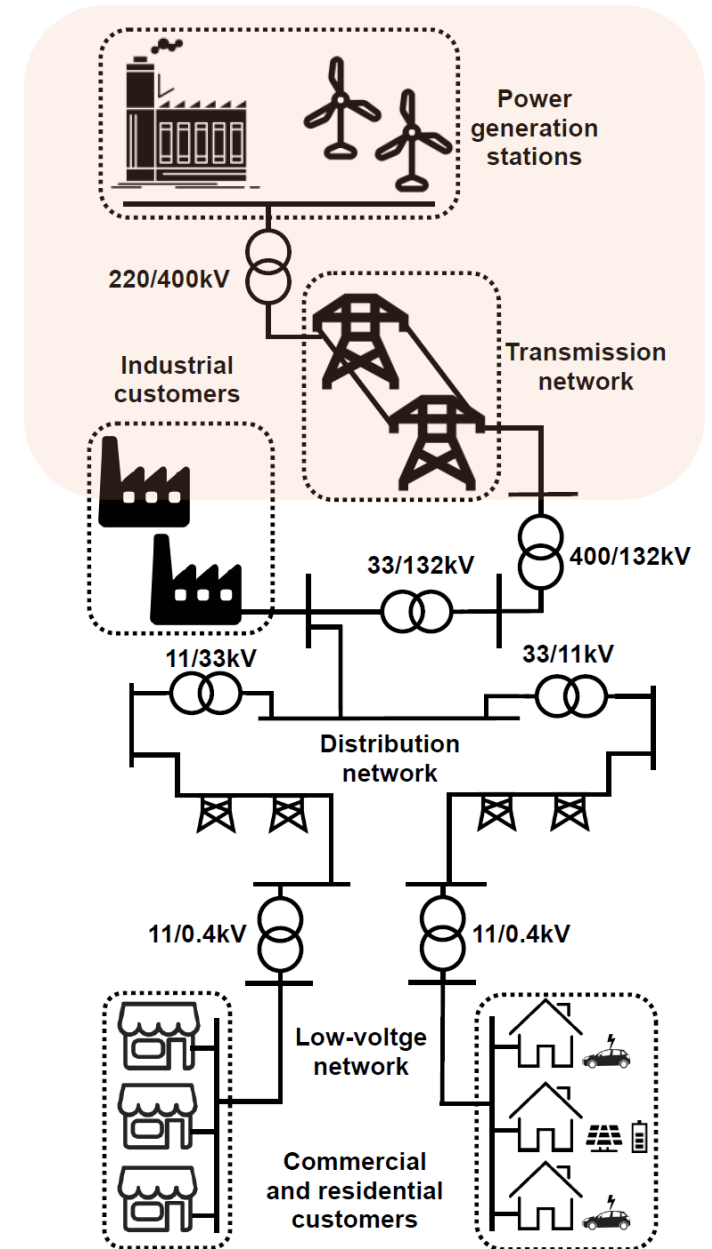
Technical Officer @ Repowering London

- Conducted **solar PV feasibility studies** for various community energy projects in London
 - Local schools
 - Housing estates
- Developed 3D CAD models of buildings to **estimate suitability for solar PV installations** and energy yield
- Analysed **energy consumption data** to support the development of financial models



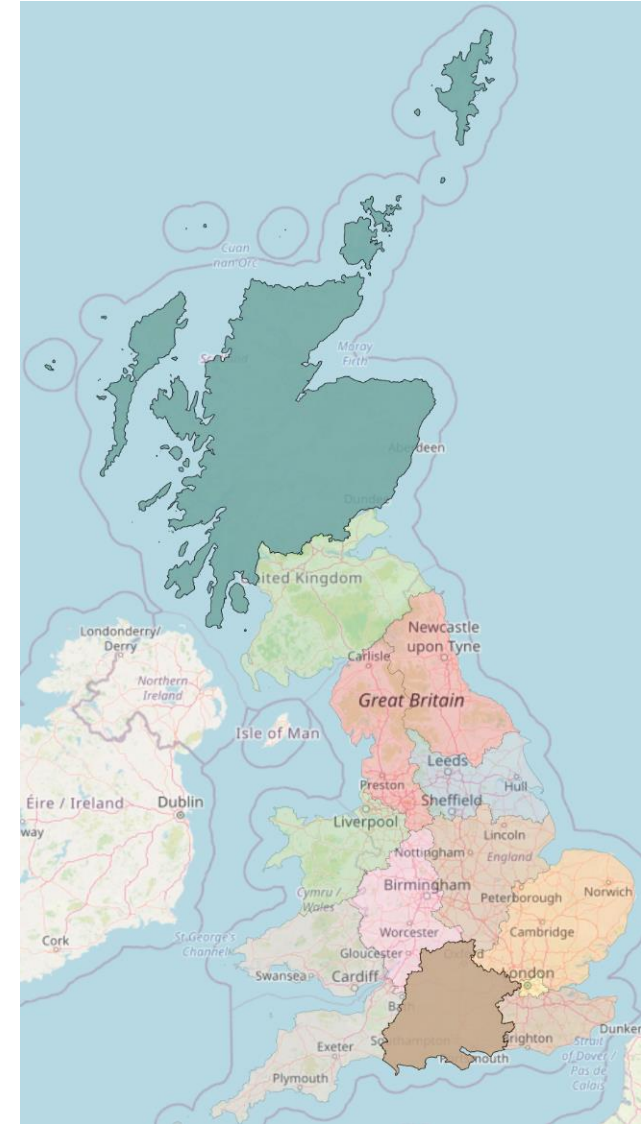
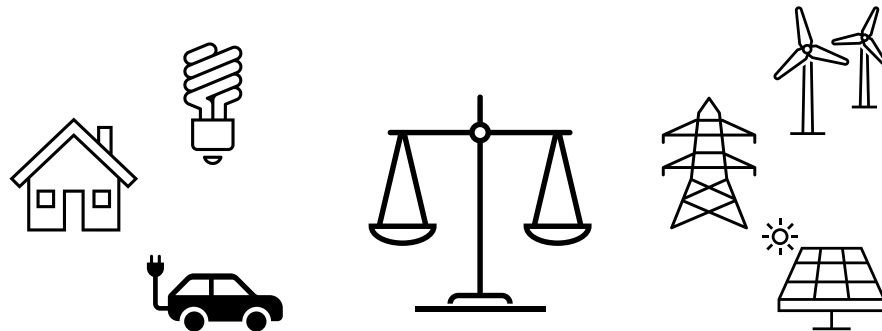
Power Systems Consultant @ Hitachi-ABB

- I worked in the **Power System consulting** department of Hitachi-ABB
- We worked with clients to **provide technical advice and solutions to customers problems**
- For example: We delivered **grid compliance studies** for offshore windfarms in the UK
- Ensure the variation in power do not cause voltage problems in the transmission network
- Ensure the windfarm meets the reactive power requirements
- Developed Python scripts to automate the studies and speed up simulations
- Used power system software:
 - DigSILENT PowerFactory
 - PSCAD



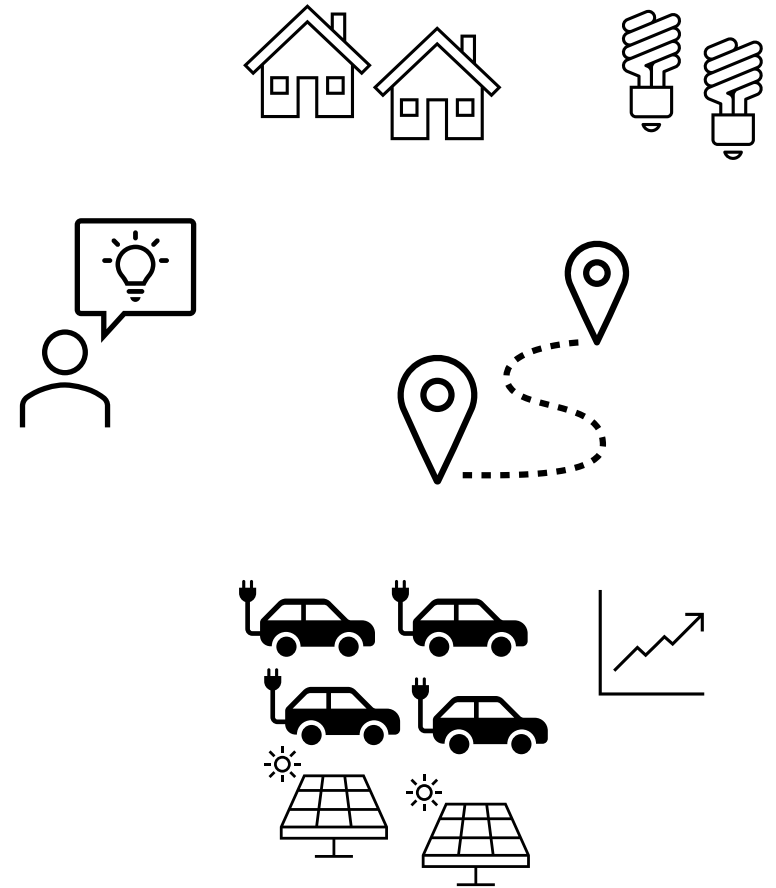
Distribution System Planner @ SSEN

- SSEN is a distribution network operator (DNO)
- We **own and maintain** the **electrical infrastructure** needed to supply electricity to 4 million customers in:
 - Central Southern England
 - North of Scotland
- We aim to provide a **safe and reliable energy supply**
- We are the intermediaries between the energy suppliers and the generators



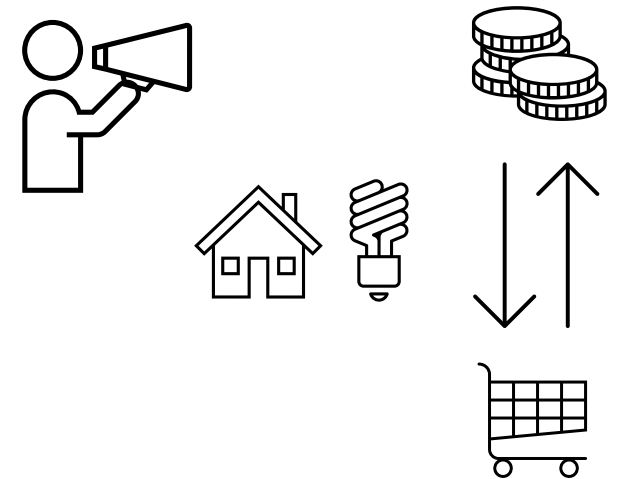
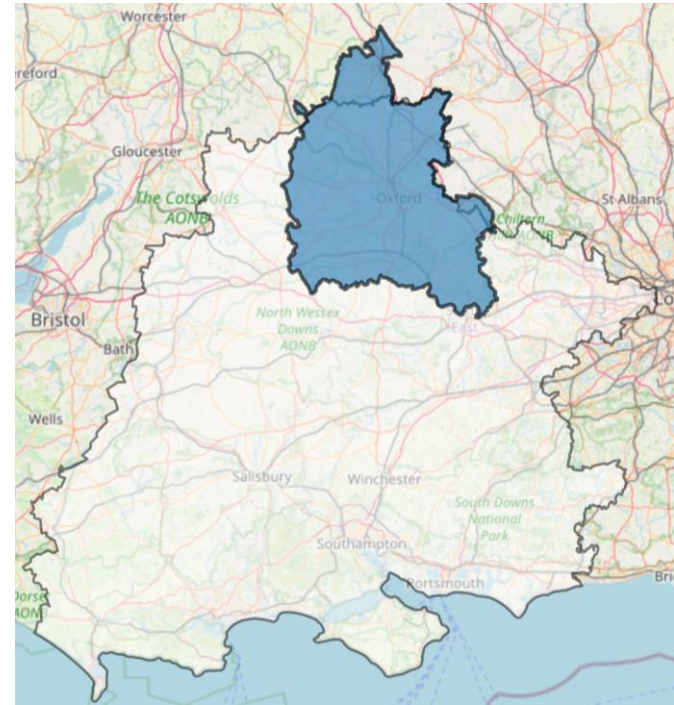
Distribution System Planner @ SSEN

- I work in the **Innovation department (Future networks)**
- We look a few years into the future to estimate **how the generation and demand would look like in the future**
- We need to **ensure the network infrastructure can cope with the future demand** (EVs, heat pumps)
- We propose and develop projects to **test new ideas**:
 - How can we **use the network more efficiently?**
 - How do we integrate more renewables, **whilst keeping a reliable supply?**

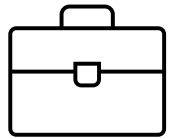


Distribution System Planner @ SSEN

- At the moment I work as part of the **Local Energy Oxfordshire (LEO)** project
- **Real-life trial of “flexibility markets”** as part of our transition to a distribution system operator (DSO)
- Enable customers to trade their **“flexibility”**, in order to **balance the supply and demand in the network**
- Development of **network models for Oxfordshire (digital twin)**
- Integration of different sources of data
- Development of **forecasting models for load and generation**
- Deal with multiple stakeholders and project partners (consultants/contractors/colleagues in BAU/market participants)



Thank you for your attention!



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<https://project-leo.co.uk/>