



# A View from the Inside

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As academics we often refer to those 'on the inside' i.e. those working in industry, policy or the third sector who are practically engaged with and implementing those things we research. **Here we interview these people to capture some of their views, challenges and realities.** We do so in order to better appreciate how academics can contribute more effectively to their work

## John Batterbee, Chief Engineer

### Smart Systems & Heat, Energy Technologies Institute (ETI)

*"I can see a real desire from industry and government to work with the academic community and collaborate effectively; I just don't feel we're quite there yet"  
"There's a lot of opportunity for making it easier for organisations such as ourselves to find the right people and knowledge from within the academic community"*

#### 1. What does your job entail?

The ETI's Smart Systems and Heat programme is seeking to **design and demonstrate the path to transform the UK energy system for heat**, of which 'smart' energy demand management is a key aspect. Work is structured in phases, so developing solutions first then demonstrating at large scales, up to a few thousand homes scale, and then scaling up the solutions that come out commercially. Between now and 2025 we need to **understand the different options available, decide which ones to start pushing forwards, create the right commercial environment for them and build the UK's capability.** We have industry members BP, Caterpillar, EDF, Rolls-Royce and Shell, and Hitachi as a programme associate for the Smart Systems and Heat programme, as well as the UK Government. We're heavily involved with DECC, Innovate UK, the Engineering and Physical Sciences Research Council, and various other organisations. We're also **collaborating with Newcastle, Manchester and Bridgend Councils.**

#### 2. What is the biggest challenge you face in your work?

From a research point of view I think there are three top knowledge gaps. The first is **consumer insight**, to really understand consumers' needs and how best to satisfy them. If low carbon heating is to appeal to the mass-market, it will need to be attractive; people have to want it. We have completed a £4million research programme on consumer needs ourselves, which has given us a very solid understanding, but there is still a huge amount to learn in an industry traditionally very 'top-down' in its thinking. We are developing new consumer-centric propositions, systems and services, but that depends on core consumer insight. Secondly is **community engagement**, to find ways to build confidence to unlock long-term investment in shared network assets. This is something quite new for the energy sector, because we've never really had to transform energy networks before at anywhere near this scale, it's just evolved over a long time. We're now going to have to get communities to buy-in to building new networks, changing domestic and commercial heating systems to connect to those networks and decommission old networks. We're delivering strategic energy transition plans for Newcastle, Manchester and Bridgend, working with the Local Authority and other stakeholders in each area using the EnergyPath Networks software tool we have developed over the last couple of years. Thirdly is **systems integration**, to understand the way the overall system behaves when all the new low carbon and other technologies are put together. We don't see our primary challenge as being about the individual technologies, although there is still a lot of room for development, but more about the integration of all of those technologies, particularly from an operational point of view.

#### 3. What would it mean to you to solve these challenges?

The simple answer to that is **the more complete the underlying evidence base, the more robust the solutions will be and the more focused on actual issues** they will be. A good knowledge base is critical to creative innovation. The more we understand about the underlying problems, the trade-offs, the compromises that have to be made, the more robust the end solutions will be.

#### 4. In what ways can academics help solve this challenge?

From our point of view, I think more can be done in terms of research focus areas which are broadly in line with the three challenges that I talked about earlier. There is also a lot that could be done **to help industry and government be able to engage with research more effectively.** At the moment it is quite difficult for organisations such as ours to interact with some of the academic research because it is spread across different organisations, so **it could be clearer where the centres of excellence are that are starting to emerge for particular topics and there could be more consolidation of funding around those centres to help them grow.** I think a broader question for research funding generally is how to **make sure the money is being channelled towards the top priority topics to make a real impact, and not spread too thinly.** One of the big areas for how industry and government can get real advantage from working with the academic community is the connection between different disciplines involved in research, such as getting social scientists and engineers to collaborate in multi-disciplinary teams. There's not much that is really tying those two sides of the coin together in depth at the moment, so **the wider academic community could really help to build a shared understanding of issues between disciplines; it is certainly something we spend a lot of time on internally at the ETI** so that our consumer insight experts have a good understanding of technology issues and vice versa.

#### 5. Are there constraints on your work that academics should be aware of?

It is really important for organisations such as ours with limited time available to invest in understanding what is out there, to engage most effectively with the academic community. **Short, snappy summaries of work that's been done could be very helpful, but probably more important than that is to structure academic communities and networks to help organisations such as ours connect easily.** Networks such as TEDDINET are undoubtedly helpful, but the challenge for organisations such as ours is still to know what is being done where, who to talk to and how to quickly bring groups of academic expertise together in one place to help on a given topic.

