

# Setting the Scene for the Exploratory Workshop

Nicola Labanca & Angela Pereira

Scenarios for a radical transition to renewables so far developed by researchers and employed by policy makers worldwide are mostly based on the assumption that energy supply and demand can be studied and approached separately. They are based on a dichotomic approach. This dichotomy has produced scenarios and policy strategies where the development of new technologies is approached by freezing people needs and wants constituting energy demand and by imagining this demand as a given, whilst new technologies capable of fulfilling these needs and wants are assumed to originate from exogenous factors, from a kind of *deus ex-machina* supposed to be capable of inventing the technical devices we need to solve the problems at stake. On the other hand, this same dichotomy has caused that energy demand is addressed by freezing energy supply, by taking energy supply technologies as a given and by assuming that demand can be driven by another kind of *deus ex-machina* who can change individual behaviours by relying on exogenous factors represented this time by price signals, information, education, training courses, nudges and the like. It is basically because of this dichotomy that all the circumstances where people can be able to change existing technological and material arrangements to the advantage of their social context or the circumstances where these arrangements might represent insurmountable barriers to behavioural change have been scarcely studied and have been mostly neglected. Put it more simply, under the point of view of energy sustainability, the application of this dichotomous approach has typically led to neglect how energy supply and demand co-evolve and influence each other in a way that can work against higher sustainability under current competitive market settings.

Which are then the origins of this separation and cut that has been created between demand and supply? How has it been created? Well, we think that these origins are very ancient and are closely linked to the separation and boundary imagined to exist between subject and object, between people and technology, between everyday life and institutions. This separation came probably before Cartesio and we suspect it dates back to the XII century.

The point is however that this dichotomy has now definitely gone. We live nowadays in the age of complex systems where any boundary assumed to exist between demand and supply, between people and technologies, between subject and object, between biology and physics has been erased. Complex systems have become the culture of the time we presently live. Science and technologies are nowadays informed by complexity and they reinforce the epistemological assumptions of complexity.

It might seem quite bizarre, but, by drawing the attention of researchers and policy makers to how the energy sustainability of the current transition has to be studied under a complex systems perspective, with this workshop we are implicitly asking them to become aligned with our present culture. This is why we have invited acknowledged experts in this field. We really would like that they help us understand how this alignment can be achieved and how we can become more aware of the complex system dynamics that have to be possibly taken into account in a transition to renewables.

At the same time, however, we know that we have to make a step back from complex systems. We have to try to look at them from an appropriate spatial and temporal distance. This is an ethical and moral imperative. As citizens and as scientists we are learning that we cannot receive any technology, conceptual assumption or social imaginary generated around techno-science. We are learning that science and technologies can represent the highest good but also the worst peril (*corruptio optimi pessima* said once Gregorio Magno). We think that

social science, (science and technology studies in particular), history and philosophy have a fundamental role to play in this respect. They can help us develop the type of second order knowledge that we need to deal with complexity. While doing so, however, we have to pay attention to not forget persons and their social practices. We have to avoid the traps of reification that often lead scientists to think that some key abstract concepts can represent the *only* drivers of the current energy transition. In our opinion true knowledge and good actions in the research field we are addressing can be generated only through a particular human sensibility allowing to adapt general principles to the particular case at stake. Rather than abstract concepts and principles, the knowledge and the good actions that we need, take human senses and bodies as point of departure. They are generated by the exertion of a *practical knowledge* and *common sense* which are embodied and belong to the social bodies made by people, their artefacts and their environment. These are the reasons why we think that social practice theories, although not certainly yet constituting a unified research field, represent the right lens through which complex systems and the energy sustainability of the current energy transition have also to be studied. We are aware that we are dealing here with an irreducible complementarity and that it can be very hard to discuss the energy sustainability of the energy transition under the proposed double perspective. How could for example hierarchies and energy conservation principles generally assumed to explain complex systems dynamics be conciliated with the fact that social practice theories take a flat ontology and the absence of any kind of equilibrium or conservation principle as a starting point to study the dynamics of socio-technical systems?

We nevertheless think that their complementarity is exactly what makes the combination of complex systems and social practice theories particularly promising and rather than debating about the validity of the related assumptions, we would like to recommend discussants to take this complementarity as a given.