

## P4-2 The Role of Science in the Transition to a Sustainable Low Carbon Society

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We are faced with persistent problems of unsustainability, which are complex, riddled with uncertainties and deeply rooted in our societal structures and culture. Meeting this challenge requires multi-, inter- and trans- disciplinary approaches and new research paradigms. One of these new research paradigms is 'sustainability science'. Sustainability science is not a mature discipline with shared conceptual and theoretical components. Rather it is a collection of multiple sciences addressing a common theme – the reconciliation of societies' development goals with the planet's environmental limits over the long term. In Europe, in particular, sustainability science is implementation-oriented and deals with persistent problems of unsustainability that have a high level of complexity. The focus is strongly on designing processes that are open, inclusive and goal-searching and that support learning and change. Sustainability Science could contribute to a low-carboncarbon

society research portfolio through organising iterative processes in which stakeholders (including the research community) develop a **common view** about the scope of the problem, elaborate a **common long-term vision** for the future in this problem area and explore the possible pathways to achieve that vision using a variety of scientific tools and methods. Achieving a Low-carboncarbon society could be supported by sustainability science because it would deal with complexity not by developing single solutions for single problems but considering interdependencies (and trade-offs). In addition a transdisciplinary approach would foster the joint production of solutions in a societal context that makes implementation more effective than other approaches tackling these challenges. Barriers to adopting a sustainability science approach, such as the current science funding structure, need to be tackled.