

R&D, IP, and Data Regarding GHGs, CDR and SRM

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Globally, concerns continue to increase over increasing levels of greenhouse gas (GHG) emissions and the likely inadequacy of efforts to directly control and reduce those emissions (mitigation measures). Current mitigation measures appear unable to meet the targets for limiting global warming set by the Paris Convention to the United Nations Framework Convention on Climate Change. Research and development (R&D) efforts are therefore turning to more aggressive means to address GHGs and warming. In particular, many current research and development (R&D) efforts seek to develop low-cost, large-scale, carbon dioxide removal (CDR) technologies and solar radiation management (SRM) approaches. These approaches seek to avoid the huge social costs and resistance to more conventional GHG emission control measures, which include everything from more efficient energy and transportation production, distribution, and utilization products and systems to more extensive and draconian land use controls and conservation measures. Performing R&D on CDR and particularly on SRM technologies is itself controversial, due to the moral hazard such R&D may generate in diminishing efforts to reduce GHG emissions directly, and due to the lack of clear governance mechanisms over the R&D itself. Further, such R&D efforts will affect development paths and costs of any ultimate procurement and deployment decisions that may be made in the future.

This paper focuses on one particular aspect of public governance, at the early stages of R&D efforts to develop large-scale CDR technologies. Private and public sector actors engaged in CDR R&D will generate large quantities of data and may acquire intellectual property (IP) rights of various kinds in that data or in innovations resulting from their R&D efforts. In part, the potential to acquire such IP rights, and thus to obtain or maintain super-competitive profits in markets for future CDR technologies that might be deployed, provides the pull for capital flows for such R&D. Accordingly, much more attention is needed to understand and to address problems that exist in our current governance structure for R&D to develop CDR technologies. The paper builds off of prior work performed with colleagues, which discussed data, patents, and trade secret rights in regard to SRM technologies. There, we suggested the voluntary creation of an SRM data commons and pledging community. This paper identifies different and additional measures that are needed now in the different context of CDR R&D, given the substantially larger number of actors and technologies that may be involved. We need these measures before various opportunity costs predictably result later.