

Submission

2016 National Research Infrastructure Roadmap Capability Issues Paper

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Question 1: Are there other capability areas that should be considered?

The inclusion of a capability area that focusses on the Solid Earth from a Crustal Services perspective (nascent energy systems, subsurface waste and energy storage, groundwater, mineral resources, crustal stability) would facilitate to capture of crucial “base-line” data in each of these fundamentally important areas. A base-line approach to understanding these crustal systems would enable researchers, government policy makers, industry and, importantly, the stake-holder public to more clearly understand the key parameters of current crustal processes and resources in a region before exploitation of a crustal resource fundamentally modifies those processes. An example might be the deployment of national research infrastructure in the form of broad regional seismic arrays. These allow the spectrum of natural, non-induced, background seismicity and crustal activity in a region to be characterised and the crustal processes involved to be better understood. Capturing this information as a baseline dataset is crucial to understanding the significance of any subsequent induced seismicity. As exploitation of crustal systems is often controversial, it is crucial that all stakeholders are aware of the implications of changes to a local/regional crustal status-quo. In addition to having a clear and detailed picture of the current base-line status in each of these systems, facilitated by national research infrastructure, the ultimate stakeholder – the Australian public, the local landholder, the farmer, the regional community, are provided with a clearly independent information source that allows them to make an assessment on the likely community impact of subsequent intervention and/or development in a particular crustal service or resource. Recognition of the independent nature of

Question 6: How can national research infrastructure assist in training and skills development?

In addition to delivering data-based research and technical outcomes, investment in the establishment of a piece of national research infrastructure provides a powerful tool in facilitating the acquisition of high-level technical skills, ongoing specialist scientific education, and the direct growth in highly-focussed research support capabilities. Research infrastructure is, by its very nature, based on cutting edge technologies specifically designed to answer contemporary, challenging research questions. Optimal functioning of such facilities, requires highly-trained operational staff to deliver outcomes that are a foundation of research. Given the fundamental link with the infrastructure, this operational workforce should be considered under the remit of national research infrastructure.

Skills development among the operational workforce would benefit significantly from the recognition and assistance of National research infrastructure. As much of the supported

infrastructure is of a highly specialised nature, training in contemporary research technologies is paramount to ensuring optimal operation of the facilities, coupled with the effective deliver of research outcomes. The multi—institutional and interstate coverage of national research infrastructure could readily provide a training framework for maintaining and enhancing the specialist skills of operational staff through the support and encouragement of short-course type technical training between facilities. Such activities would also reinforce inter-facility research networking and project collaboration opportunities, both of which serve to strengthen the capabilities of participant institutions in delivering high-impact, nationally-important research outcomes.