ID.	TG2 PRIORITIZED AREA	PROBLEM STATEMENT / CHALLENGE	SUPPORTING TECHNOLOGY & KNOWLEDGE INNOVATIONS[6]
#9	**Offshore CO_2 storage and late-life deposit** After an oil or gas field is depleted, CO_2 injection for storage can commence. This will effectively store large amounts of CO_2, as well as postpone the de-commissioning and could have a positive effect on the field's NPV. Life-extension challenges would be the same as for other life-extension projects.	The old installation and its equipment topside, at the seabed and subsurface are likely not designed for handling CO_2. Integrity must be ensured through-out the CO_2-injection phase, and for subsurface equipment also after the field has been abandoned.	• Anti-corrosive processing equipment. • CO_2 injection pump technologies. • Leverage renewable energy sources nearby. • Modelling tools to ensure safe CO_2 injection, seal rock integrity and maximized utilization of CO_2 storage capacity.
		Injected CO_2 will have to be stored without leaks permanently. Any leaks must be identified early.	• Long term reservoir monitoring capabilities for containment assurance .
#10	**Data acquisition for subsurface understanding and models** Subsurface data provide the basis for success-ful exploration and efficient field develop-ment.and operations. Access to sufficient amounts of high-quality data at reasonable costs is an enabler for im-proving subsurface knowledge and developing and implementing better subsurface tools.	Exploration and reservoir management is associated with a high degree of uncertainty. To reduce uncertainty there is a need for improved sensors and data acquisition equipment that will improve data quality and enable better imaging of the subsurface.	• High resolution broadband seismic data. • Further mature OBN-acquisition / streamer systems. • Improved borehole seismic data. • 3D resitivity imaging. • Better datapoints for each well (inflow tracers, permanent downhole gauges, well rate measurements, DTS and DAS (acoustic and temperature)). • Automated accurate well monitoring capabilities.
#11	**Data management for subsurface understanding and models** Subsurface data provide the basis for success-ful exploration and efficient field develop-ment and operations. Access to sufficient amounts of high-quality data is an enabler for improving subsurface knowledge and developing and implement-ing better subsurface tools. Efficient handling/ management of the data is the step after data acquisition.	Data handling and management is often time consuming and cumbersome. The inefficiency is partly related to interoperability and format issues, data quality, and inefficient infrastructure for storing and distributing data.	• Data management protocols and maintenance systems. • Standardized data storage systems. • DISKOS –improvements in effective data usage and data type expansions • NPD's CO_2 storing ATLAS. • Rock image / cuttings database. • Industry collaboration initiatives like OSDU.

6 These are examples. Other solutions addressing the prioritized technology areas should also be sought and developed.

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#12	**Subsurface understanding and models** Improved subsurface understanding and better subsurface models are key to improve the NCS competitiveness: it's the basis for more efficient exploration, better well placement and safe drilling, improved reservoir drainage, and less energy use and CO_2-emissions.	Improved models and modelling approaches, e.g. integrated models utilizing advanced data analytics / AI / ML, could enable faster model updates providing a more comprehensive specter of potential outcomes.	• More knowledge related to seals, overburden and chemical composition. • Basin models incorporating migration pathways and reservoir history. • Improved 4D analysis techniques. • Improved understanding of the source of production. • Integration of more data analytics, AI and ML in models. • Hybrid models where AI integrates with physical models. • Improved tectonic models. • AI techniques for model generation, matching and predictions.
#13	**Water management** Water management is fundamental for cost-efficient drainage of the reservoirs. Water processing and injection is power demanding and it is a main driver for CO_2-emissions from the NCS.	Water injection is essential for efficient reservoir drainage. Water fingering and break-through leads to less efficient sweep and higher than necessary water cut, and measures to prevent this are sought after. Water used for improved sweep needs to be treated. More cost- and energy efficient ways of water treatment are sought.	• EOR measures such as foams, polymers and gels that improve sweep and reduce water production. • Develop effective "green" chemicals with little environmental risk potential. • Subsea water treatment.
		Water is being produced from the reservoirs. The water cut is often low in the early days of a field, and increases over time. Processing the water takes up processing capacity topside. Re-injection of produced water is preferred over discharge-to-sea, and the re-injection is energy demanding. Technologies to reduce water production and/or separating the water on the seabed, are therefore important for reducing power consumption.	• Improved inflow control devices (AICD) to reduce water production from reservoirs. • Down-hole water separation and re-injection. • Seabed water separation and re-injection.