



**Australian Government**  
**Department of Industry,  
Innovation and Science**

# Coal and Low Emissions

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# Thermal Coal by Export Earnings

## Australia's thermal coal export earnings by destination, 2018



**39%**  
Japan



**24%**  
China



**15%**  
South Korea



**11%**  
Taiwan



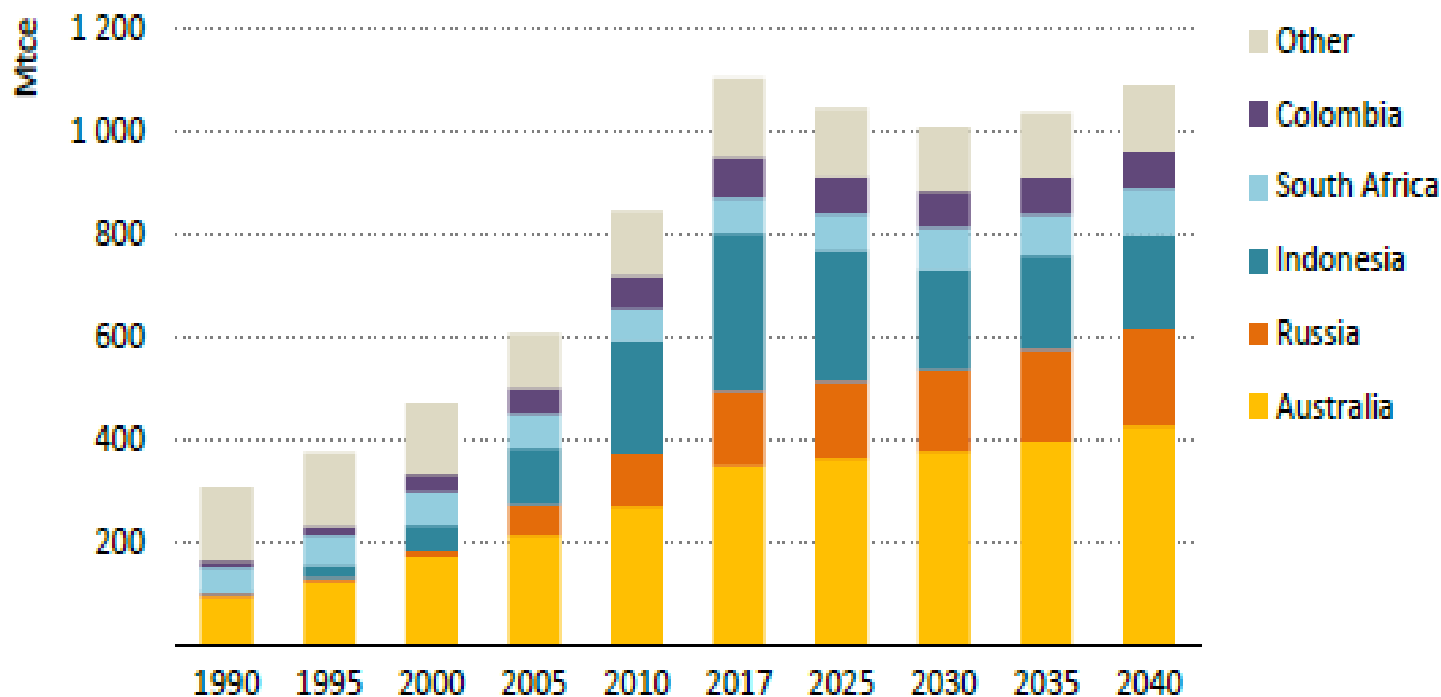
**2%**  
India



**9%**  
Rest of the world

Source: Resources and Energy Quarterly June 2019

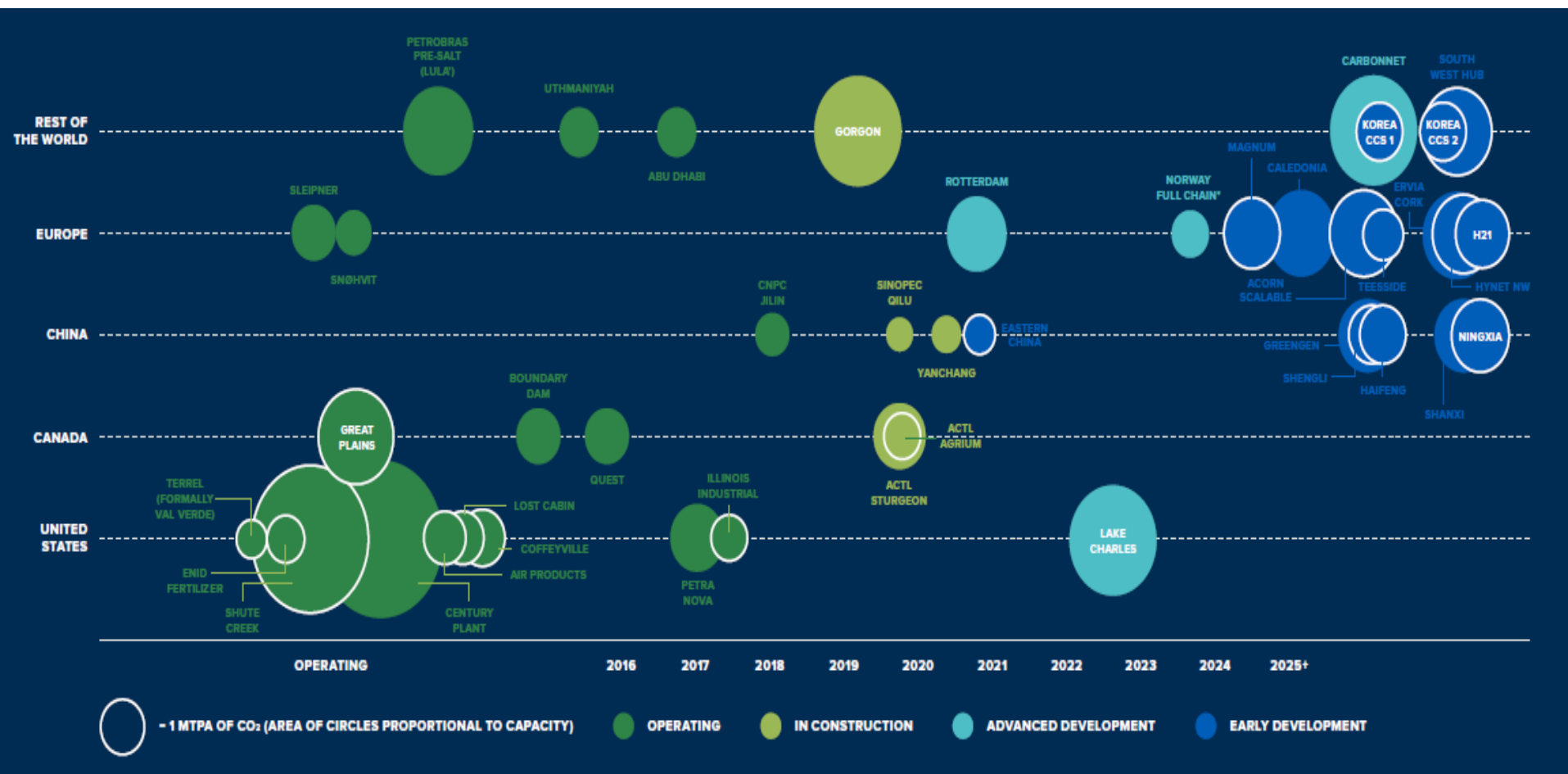
# Coal Exporters in the New Policies Scenario



*Coal exporters vie for market share in a stagnant trade market*

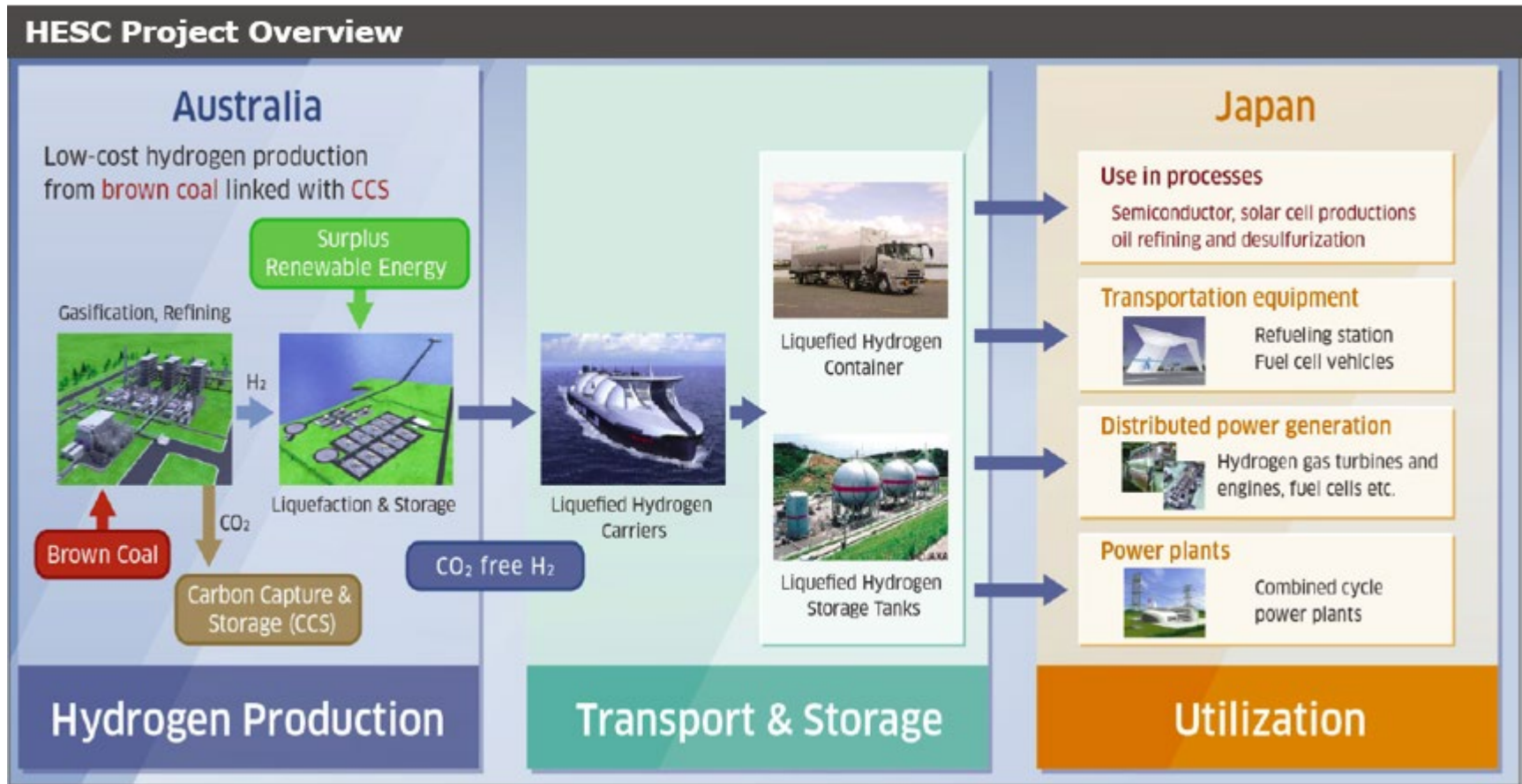
Source: International Energy Agency, World Energy Outlook 2018

# Global Large-Scale CCS Facilities



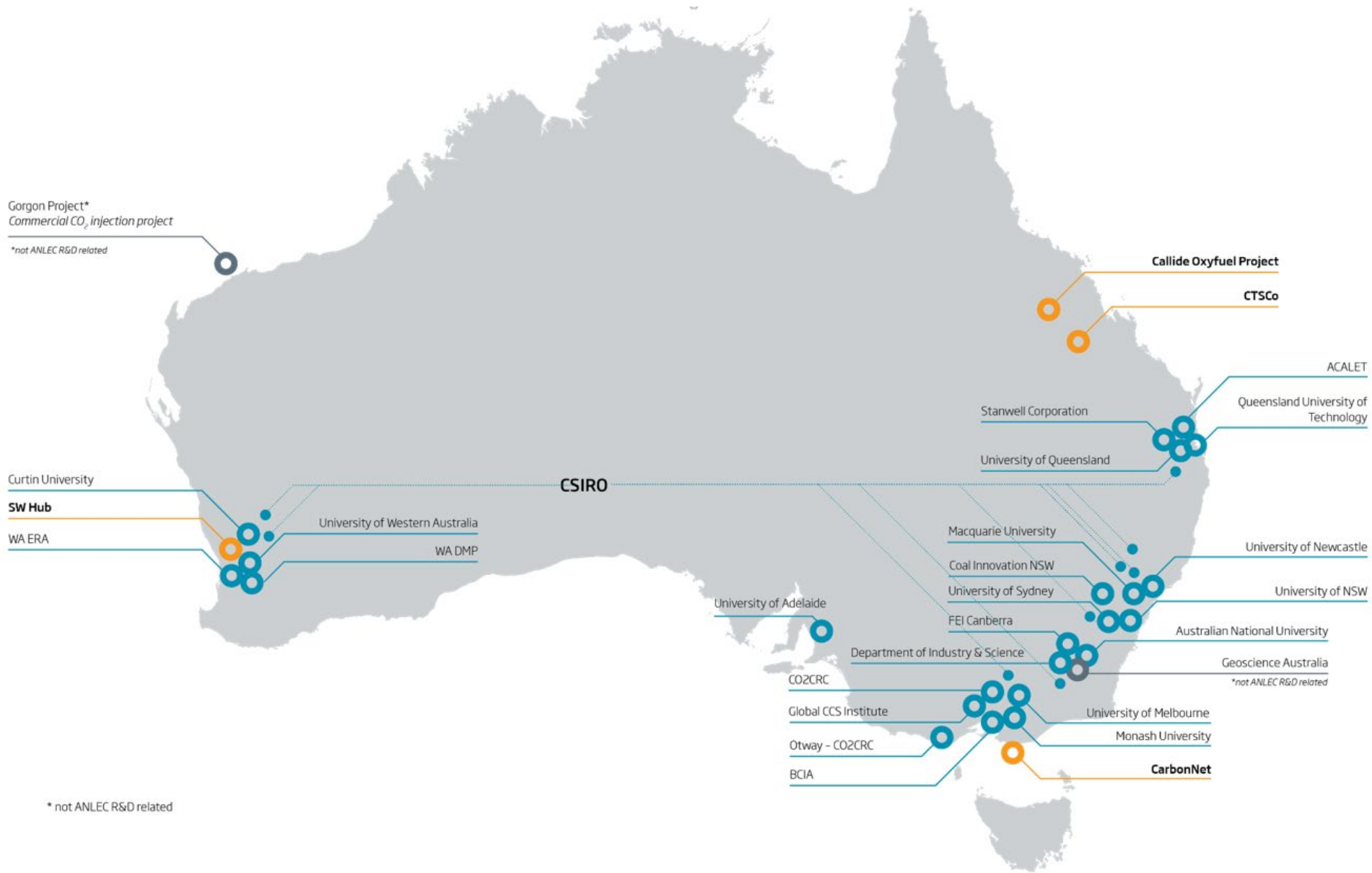
Source: Global CCS Institute

# Hydrogen Energy Supply Chain Pilot Project

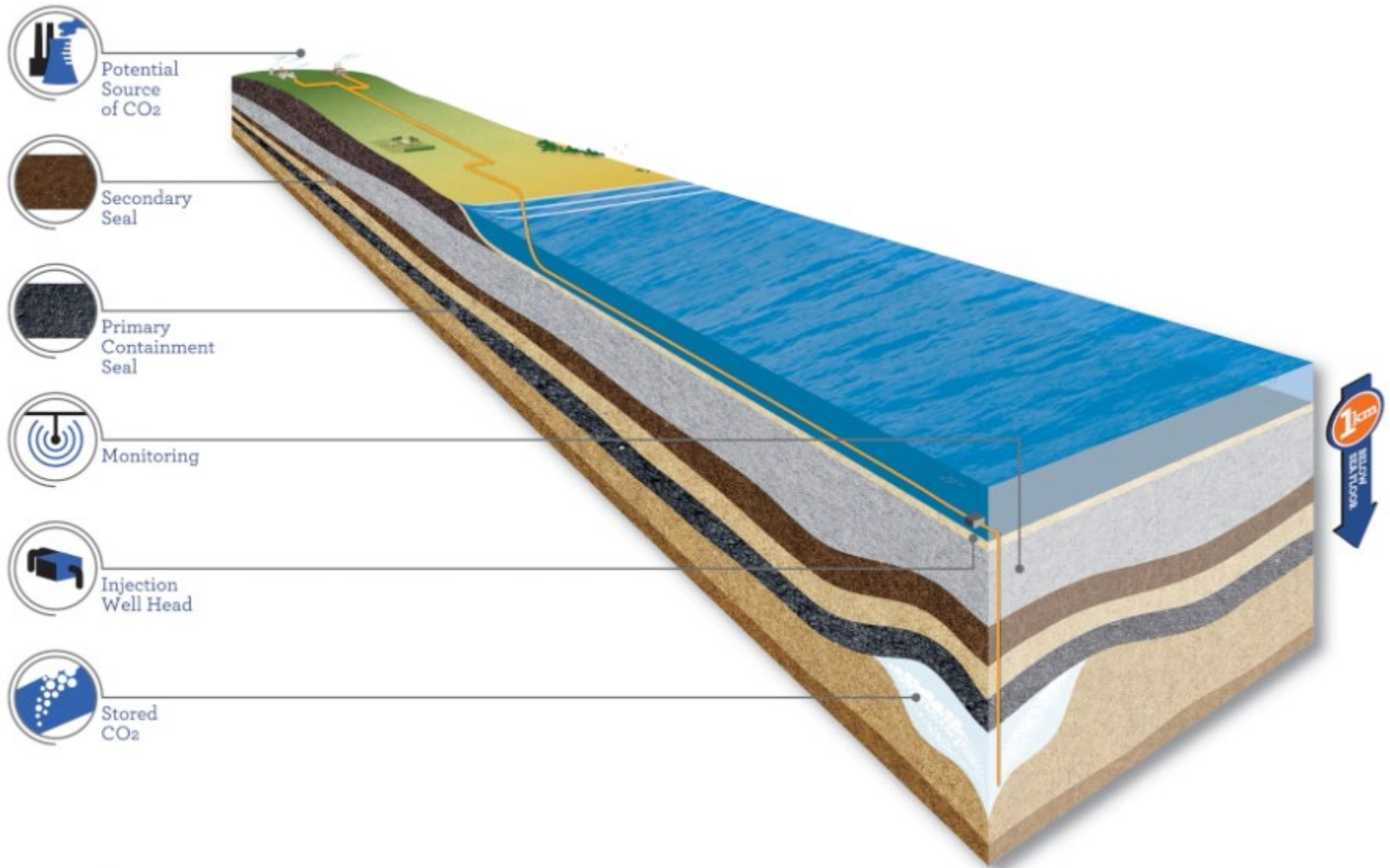


Source: Kawasaki Heavy Industries, Ltd., 2016

# CO<sub>2</sub> Storage and Capture in Australia



# CarbonNet



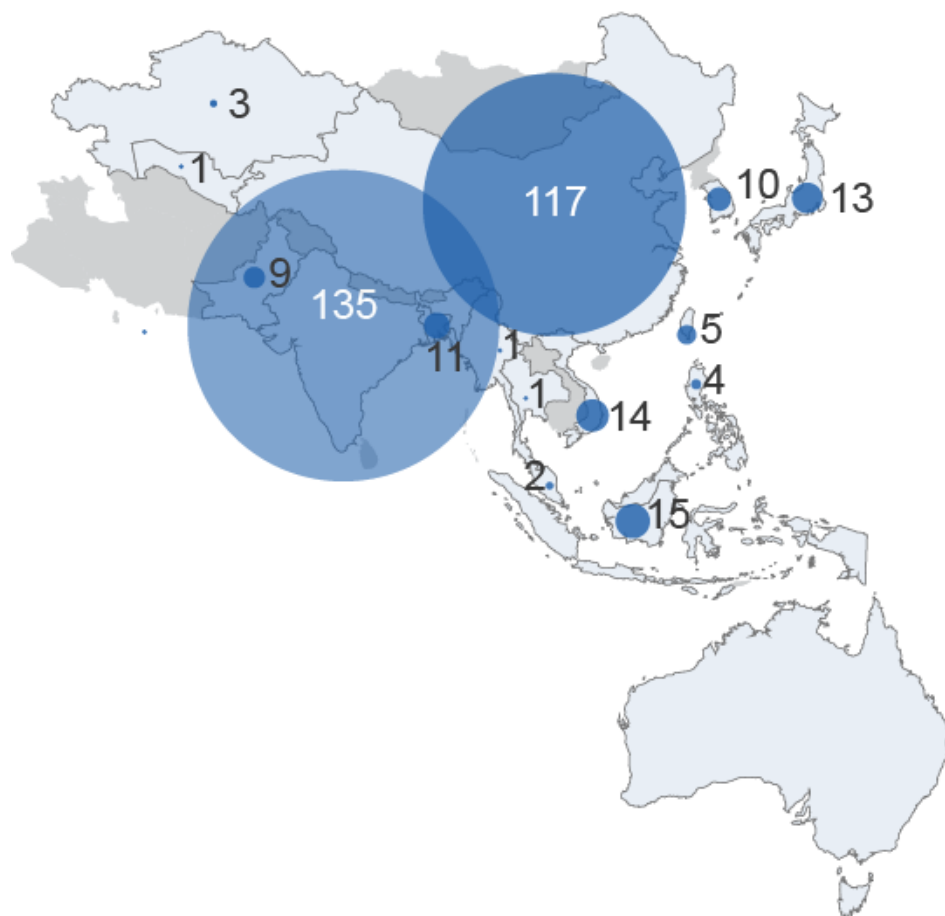
© The State of Victoria, 2013

Source: CarbonNet



# HELE Clean Coal Technology in Asia

Number of advanced technology coal fired power stations planned or under construction



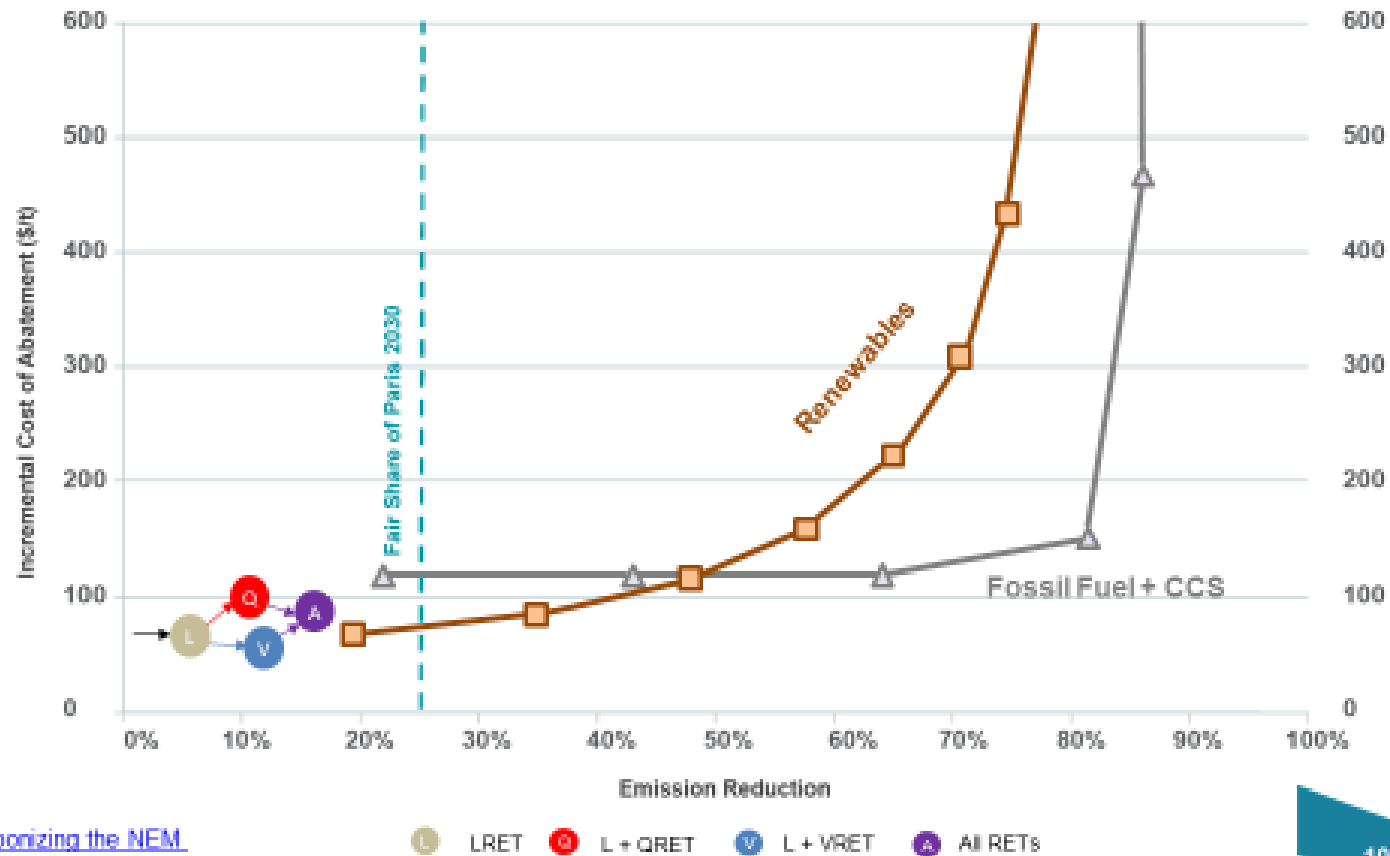
India	135
China	117
Indonesia	15
Vietnam	14
Japan	13
Bangladesh	11
Korea	10
Pakistan	9
Taiwan	5
Phillippines	4
Kazakhstan	3
Malaysia	2
Myanmar	2
Thailand	1
<b>Total</b>	<b>341</b>

Source: Department of Industry; Innovation and Science (2017)



# Inform Strategic National Decisions

- LRET, VRET, QRET together do not get to Paris
- Renewables included PV, Wind and Batteries. CSP was available but not used (too expensive)
- Cost of abatement using renewables starts cheaper than CCS but cross over at 45% decarbonisation.
- Renewables can get to 80% but at enormous cost



Source: [Managing flexibility while decarbonizing the NEM](#)



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