Offshore Gippsland Basin

SOUTHEASTERN VICTORIA, OFFSHORE

Reservoir:

Top Latrobe formations and Golden Beech Subgroup; and Intra-Strzelecki, Intra-Seaspray groups

Seal:

Lakes Entrance Formation, Kipper Shale, and basal Halibut Sub-group

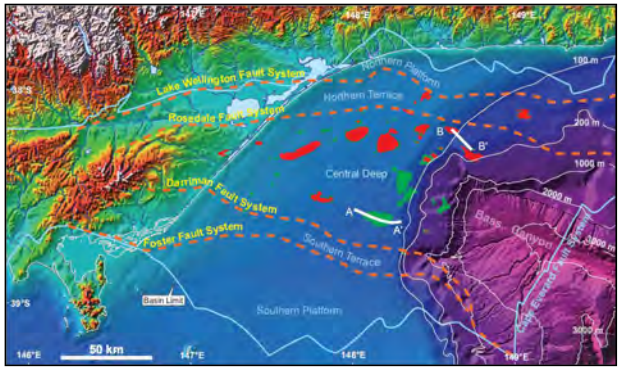
HYDROCARBON POTENTIAL

CATEGORY 1 and 2* (OGRA 2005)

Crude oil	MMBL	278.28
Condensate	MMBL	130.92
LPG	MMBL	174.85
Sales gas	Tcf	7.35

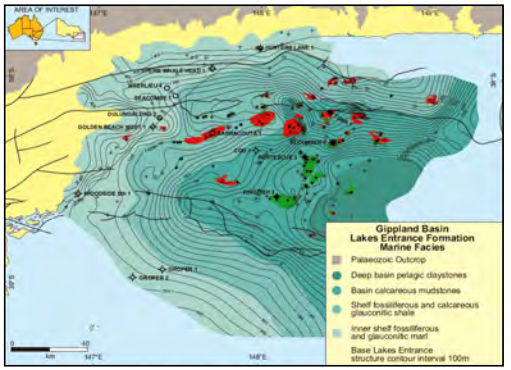
*data from entire basin

STRUCTURAL ELEMENTS



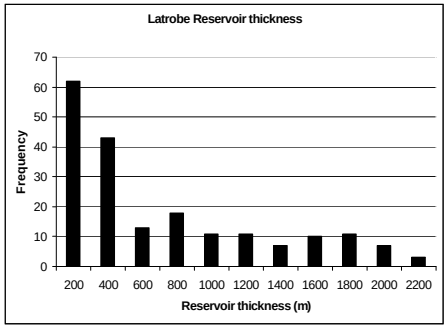
(After Bernecker and Partridge, 2001)

REGIONAL SEAL AREA

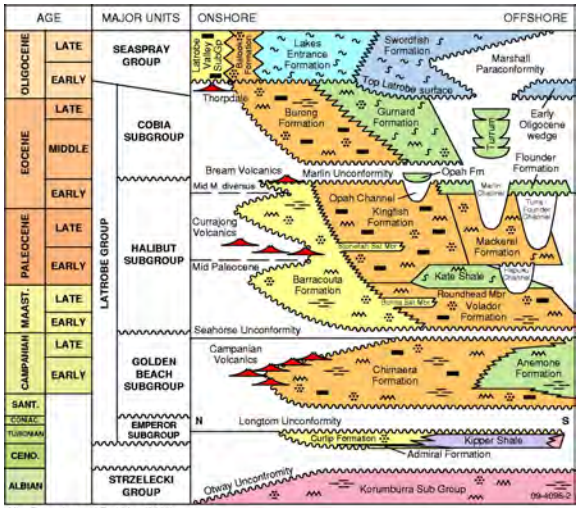


(After O'Brien et al., 2008)

RESERVOIR THICKNESS

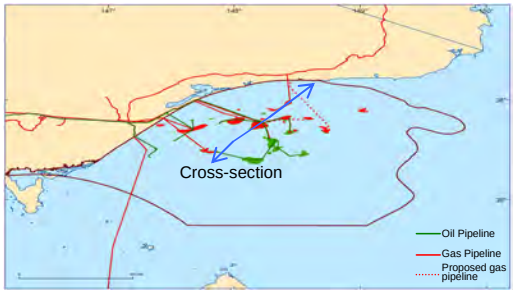


STRATIGRAPHY



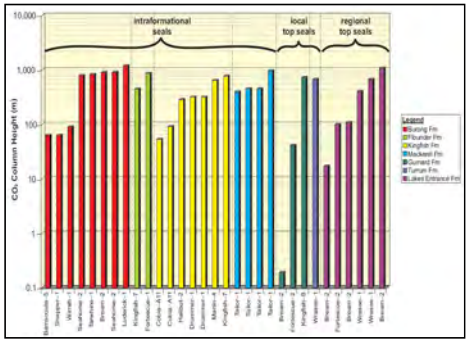
(After Bernecker and Partridge, 2001)

OIL AND GAS FIELDS



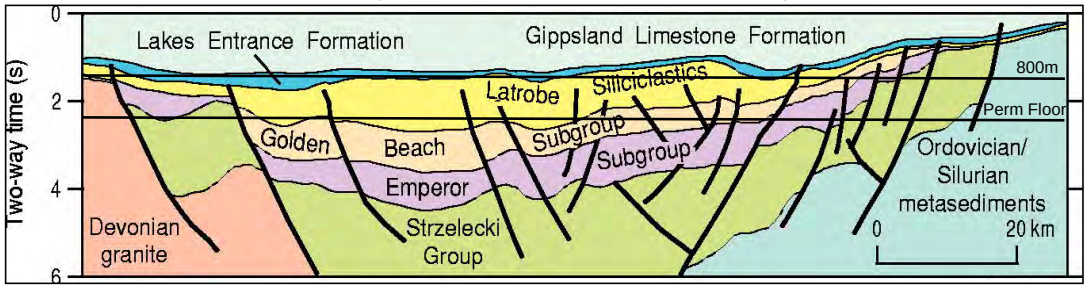
WELLS AND SEISMIC COVERAGE

TOP SEAL POTENTIAL



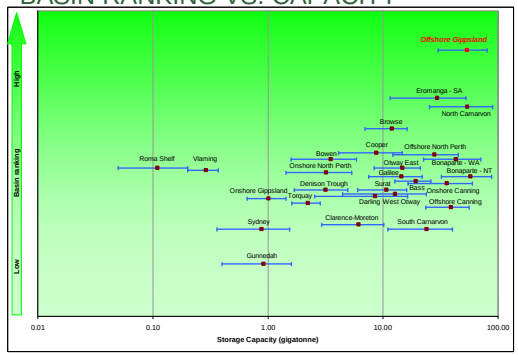
(After Gibson-Poole et al., 2006)

REGIONAL CROSS SECTION (LOCATION IN OIL AND GAS FIELDS MAP)



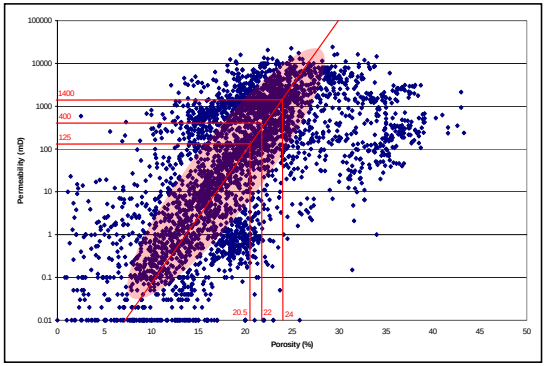
(After Power et al., 2001)

BASIN RANKING VS. CAPACITY

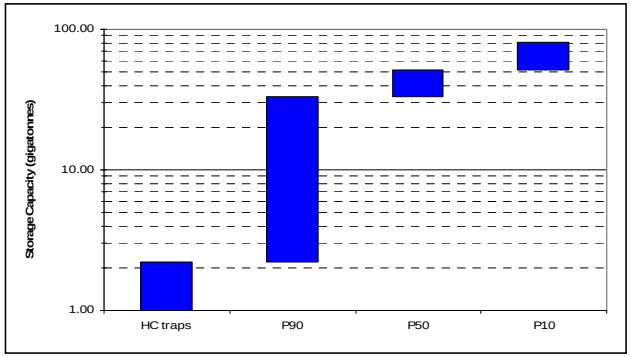


Offshore Gippsland Basin

POROSITY VS. PERMEABILITY *Values from basin-wide dataset



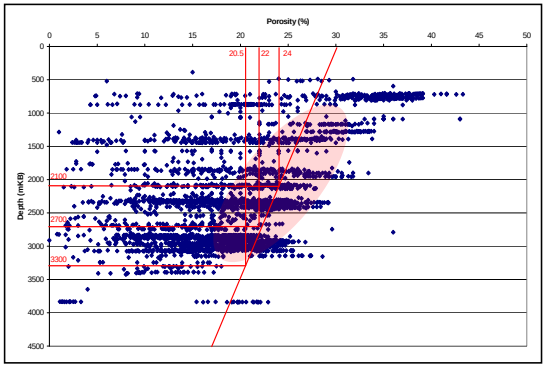
STORAGE CAPACITY



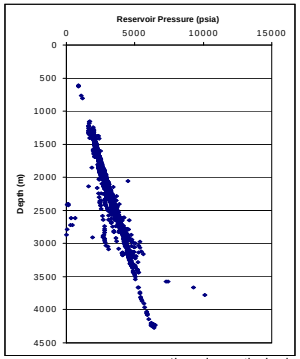
BASIN RANKING

Category	Description	Score	Weighting
Tectonics (Seismicity)	Medium/Low	4	0.00
Size	Large	3	0.06
Depth	Intermediate	3	0.10
Type	Non-marine and Marine	2	0.04
Faulting intensity	Limited	3	0.14
Hydrogeology	Good	3	0.04
Geothermal	Moderate	2	0.05
Hydrocarbon potential	Giant	5	0.05
Maturity	Over-mature	5	0.05
Coal and CBM	Deep	3	0.00
Reservoir	Excellent	5	0.16
Seal	Excellent	5	0.18
Reservoir/Seal Pairs	Excellent	4	0.03
Onshore/Offshore	Shallow Offshore	2	0.00
Climate	Temperate	5	0.00
Accessibility	Acceptable	3	0.00
Infrastructure	Extensive	4	0.00
CO_2 sources	Major	4	0.00
Knowledge level	Extensive	4	0.05
Data availability	Excellent	4	0.05
Overall Ranking			**1**

POROSITY VS. DEPTH

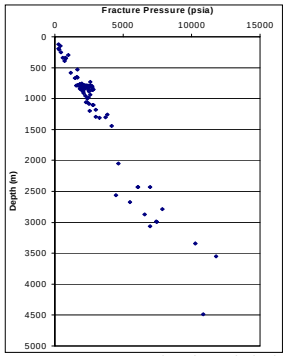


RESERVOIR PRESSURE VS. DEPTH *CSIRO PressurePlot



*based on entire basin

FRACTURE PRESSURE VS. DEPTH *CSIRO PressurePlot

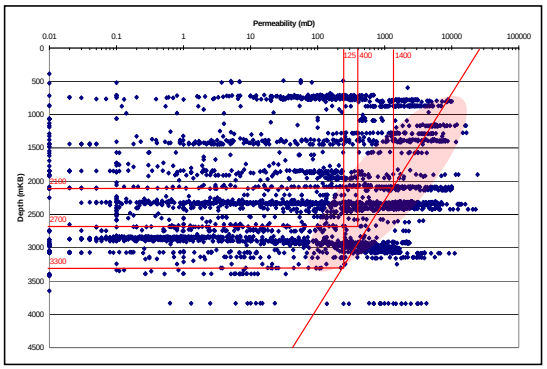


*based on entire basin

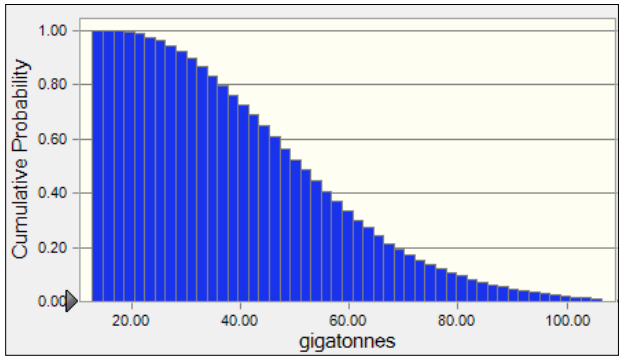
STORAGE CAPACITY ESTIMATE

Parameter	Unit	Score (P90)	Score (P50)	Score (P10)	Distribution
Area of storage region	km^2	10000	16000	30000	Triangular
Gross thickness of saline formation	m	200	500	900	Triangular
Average porosity of saline formation over thickness interval	%	19	22	25	Triangular
Density of CO_2 at average reservoir conditions	$tonne/m^3$	0.5	0.6	0.7	Triangular
E-storage efficiency factor (% of total pore volume)	%	4	4	4	
Calculated storage potential	gigatonnes	31.0	48.8	78.3	

PERMEABILITY VS. DEPTH



STORAGE CAPACITY CURVE



POTENTIAL INJECTION PARAMETERS

Parameter	Unit	Shallow	Mid-Depth	Deep
Depth base seal	m	1600	2000	2400
Formation thickness	m	500	700	900
Injection depth	m	2100	2700	3300
Porosity	%	24	22	20.5
Absolute permeability	mD	1400	400	125
Formation pressure	psia	3030	3900	4760
Fracture pressure	psia	5460	7010	8570

DISCLAIMER

The purpose of these montages is to aid a high level evaluation of the geological storage potential of Australia's sedimentary basins for future CO_2 emissions. The evaluations are based on core analysis and other data derived from Geoscience Australia and other sources. However due to time constraints, it has not been possible to carry out the detailed evaluation of the data, which will be required for the next phase of analysis.

In this exercise, we sought to recognise a range of characteristics within each basin by identifying three sets of parameters at different locations and depths in the basin. The intent is to generate an indication of a range of storage capacity and potential injection rates. These capacities and rates are being used in high level reservoir modelling work to generate injection tariffs* and capacity estimates. All of this work feeds into a process that provides indicative, conceptual transport and storage tariffs for CO_2 emissions captured in various parts of Australia.

This 'top down', simplistic approach seeks to describe the magnitude and range of potential costs for transport and storage in Australia, at a 'conceptual' level of accuracy. Clearly, any final investment decision would call on an increased understanding and level of accuracy through the usual project development process.

* Cost per tonne of CO_2 avoided, calculated using the net present value of cash flows over a 25 year asset life.

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