

Natural hydrogen regulation in South Australia

2023 HNAT Conference

Elinor Alexander

Department for Energy & Mining

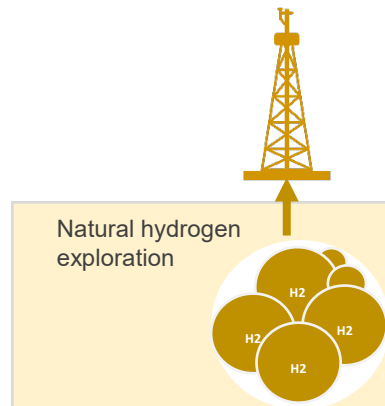


South Australia's hydrogen legislative framework

Petroleum & Geothermal Energy Act 2000 (now Energy Resources Act 2023)

- single window into government for natural hydrogen.
- includes underground storage and pipeline transport for all 'colours' of hydrogen

Natural (gold, white) hydrogen

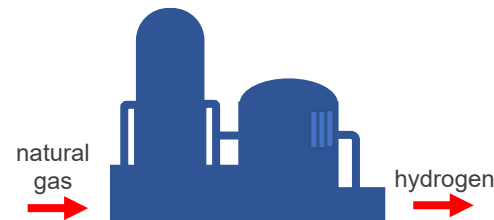


Carbon capture & storage (CCS)
Underground hydrogen storage
Pipeline transmission

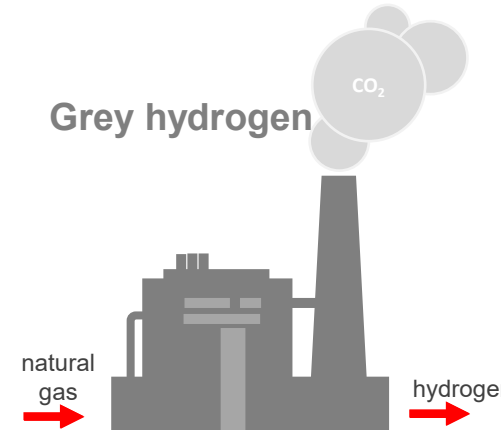
Hydrogen and Renewable Energy Act 2023

- Single window into government for all manufactured/generated hydrogen.

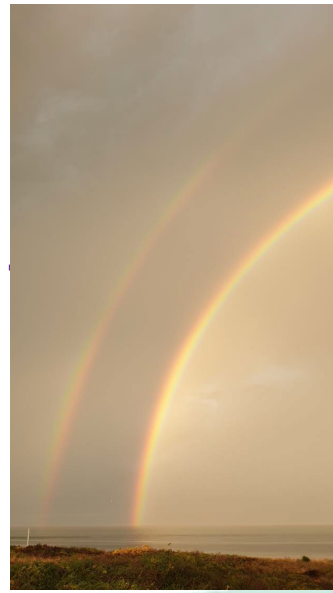
Blue hydrogen



Grey hydrogen



Green hydrogen



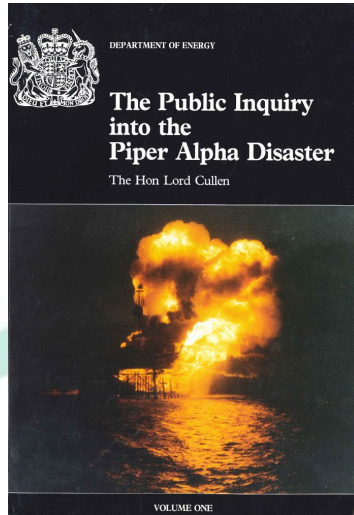
Energy Resources Act 2023

(formerly *Petroleum and Geothermal Energy Act 2000*)

In 2000, following the Piper Alpha Incident, DEM's regulatory philosophy shifted to a risk-based approach – Licence operator demonstrates how they will achieve satisfactory outcomes.

- Legislation has been kept 'evergreen' via amendments - most recently in November 2023;
- Objective/risk based regulatory framework;
- Covers licensing and regulation of exploration and exploitation of:
 - Petroleum and other prescribed **regulated substances***;
 - Deep geothermal energy;
 - Gas storage reservoirs for regulated substances (gas, CCS, hydrogen etc.); and
 - Transmission pipelines for regulated substances.

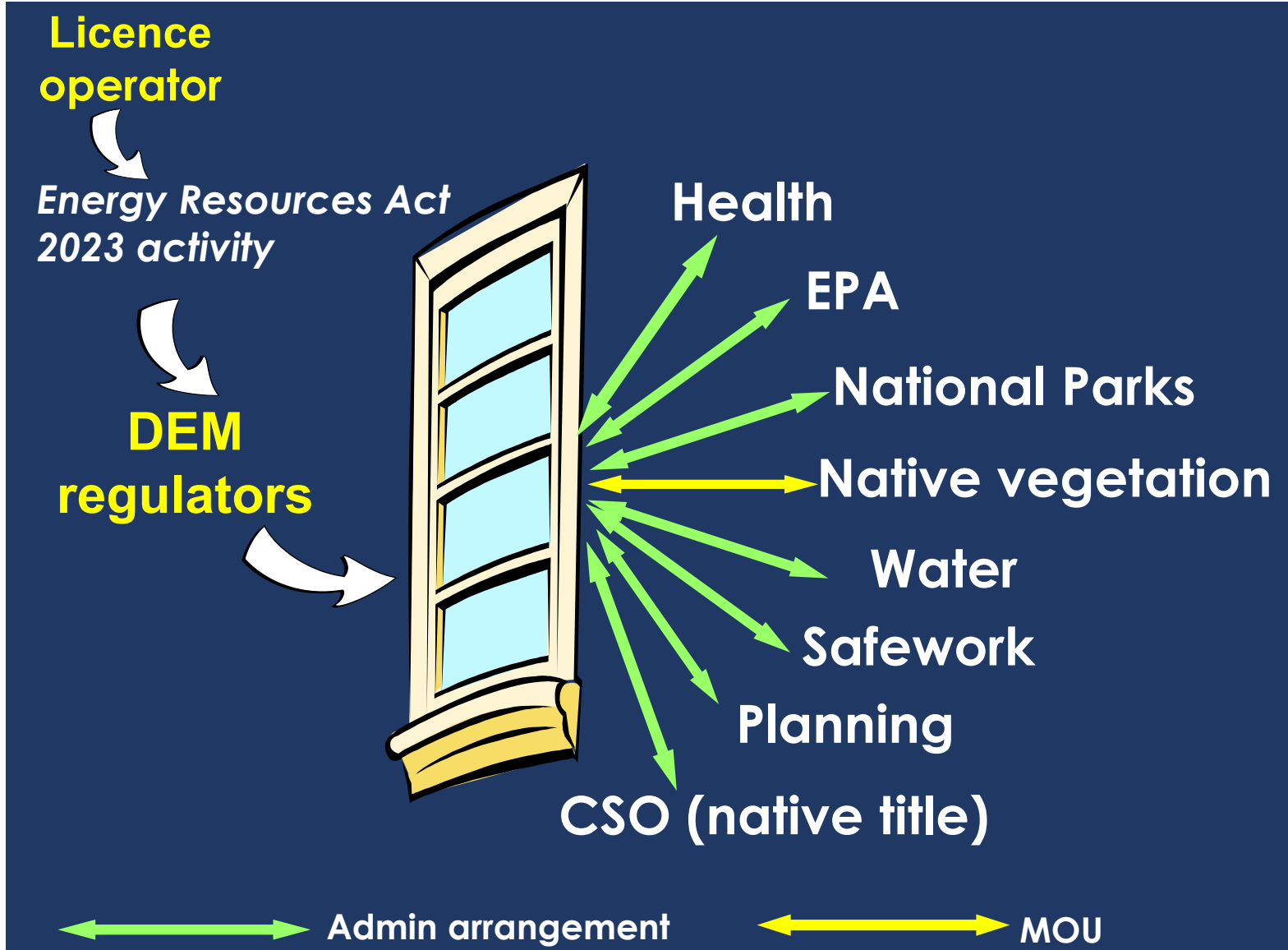
***In February 2021 changes to the Regulations added hydrogen as a 'regulated substance' – joining petroleum, CO₂, H₂S, He, N and substances produced with petroleum.**



Best Practice Regulatory Principles

- Certainty
- Openness
- Transparency
- Practicality
- Flexibility
- Efficiency

SA's one window into government



Energy Resources Act 2023

STAGE 1:	Licensing: grant of licence authorising the licensee to carry out the specific activity to which the licence relates.
STAGE 2:	Environmental assessment and approval of environmental objectives: assessment and approval of environmental objectives required to be achieved by a proponent and upon which the Department for Energy and Mining (DEM) will regulate it against.
STAGE 3:	Activity notification and approval: submission of location-specific activity notification for assessment and approval where required.
STAGE 4:	Post Closure Liability: at end of project life the licensee can apply to relinquish the licence and for long term liability to be either limited or excluded – residual risks will be assessed and the Minister may grant such approval with/without conditions.

Gold Hydrogen
drilling EIR:



Gold Hydrogen
drilling SEO:



Q. Why do we regulate?

A. Build public trust in:

- The industry and industry performance
- Regulation of that industry - reduces risks to a ALARP and acceptable to community

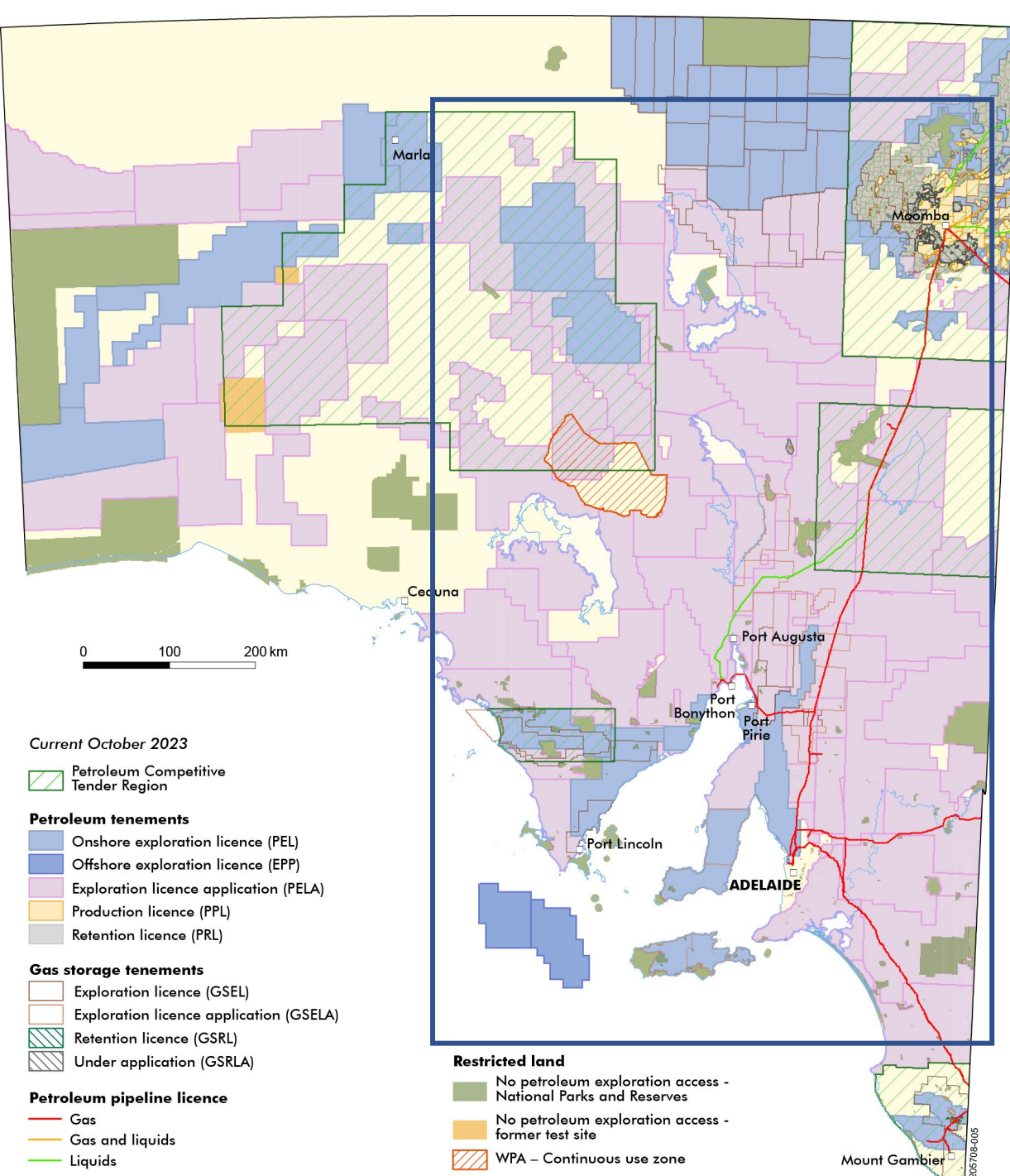


Licensing

A Petroleum Exploration Licence (PEL) is required to explore for natural hydrogen.

Three 5 year terms, 1/3 relinquishment at end of each term.
Discoveries are held by Petroleum Production Licences.

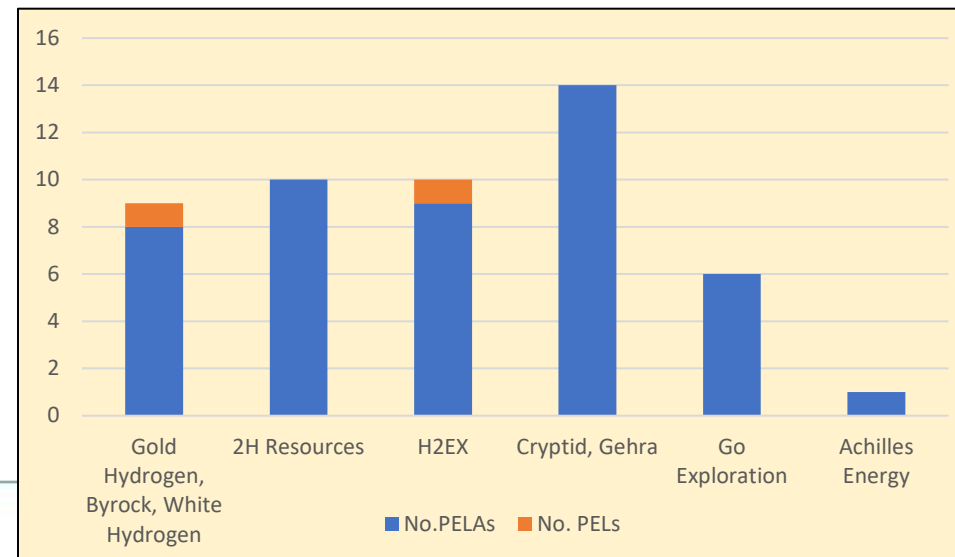
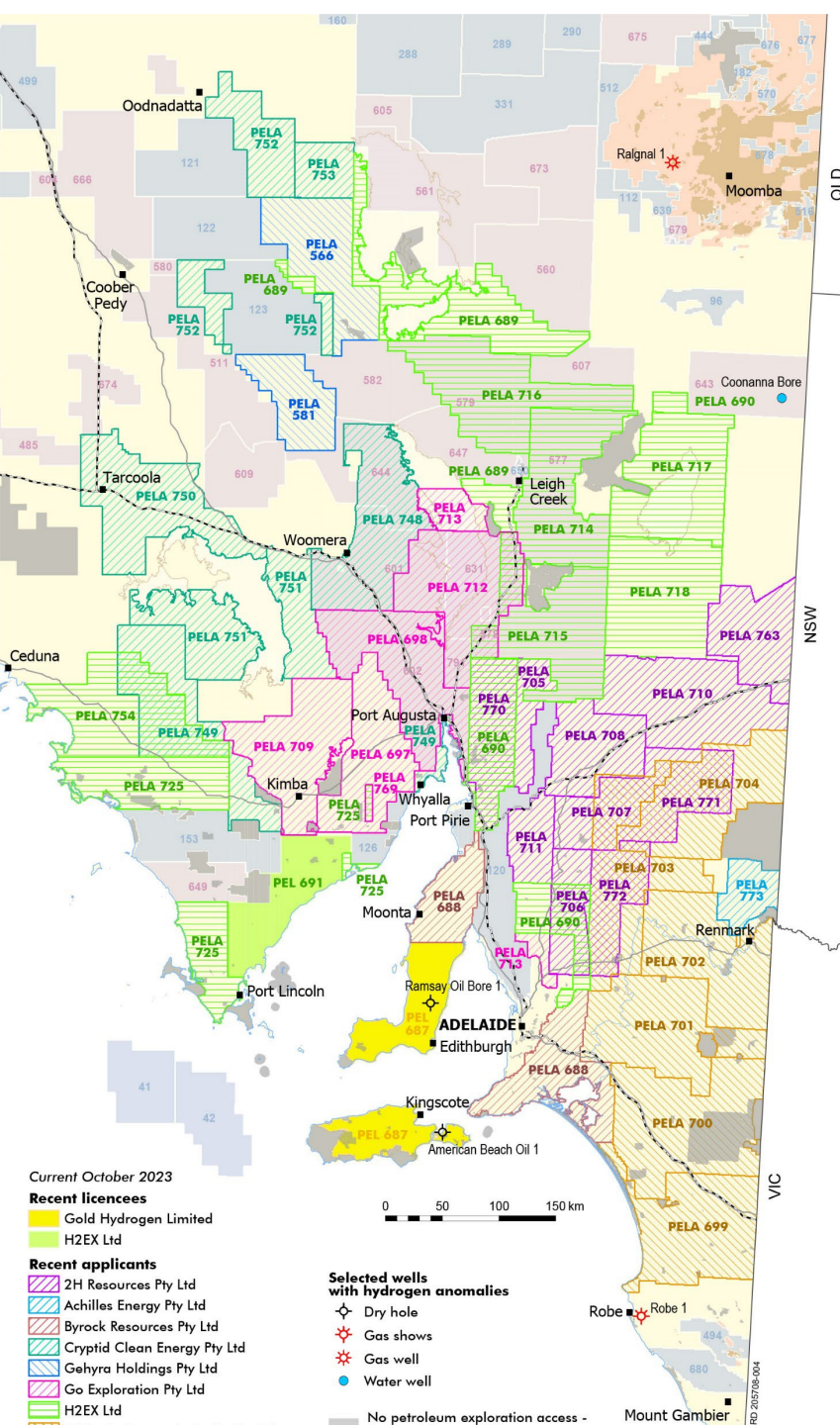
- To apply for a PEL:
 - Pay the fee of \$5,174.
 - 5 year work program with at least 1 well.
 - Evidence of technical & financial capacity.
- Competitive tender regions - vacant acreage is only available via formal DEM releases based on work program bidding (5 year exploration program, evidence of financial and technical capacity).



Salt Lake on Sundown Rd, Yorke Peninsula

Hydrogen exploration status

- >40 'over the counter' applications have been lodged for PELs targeting natural hydrogen since February 2021.
- Applications are assessed by DEM-ERD and if valid, licences are then offered to the applicants.
- In areas where Native Title may exist, a Native Title Agreement is required before licence grant.
- The first PEL was granted in July 2021 to Gold Hydrogen Pty Ltd shown in yellow. Second PEL was granted to H2EX in June 2022 shown in green.
- 2H Resources is the first mover in 6 PEL applications.



For more information on natural hydrogen in
South Australia:

