

**PETROLEUM LEGISLATION AMENDMENT BILL 2023**  
**PETROLEUM AND GEOTHERMAL ENERGY SAFETY LEVIES AMENDMENT BILL 2023**

*Cognate Debate*

Leave granted for the Petroleum Legislation Amendment Bill 2023 and the Petroleum and Geothermal Energy Safety Levies Amendment Bill 2023 to be considered cognately, and for the Petroleum Legislation Amendment Bill 2023 to be the principal bill.

*Second Reading — Cognate Debate*

Resumed from 29 November 2023.

**MR G. BAKER (South Perth)** [3.03 pm]: I rise to speak on the Petroleum Legislation Amendment Bill 2023 and the Petroleum and Geothermal Energy Safety Levies Amendment Bill 2023. This legislation is one part of a suite of reforms that our government is pursuing in the clean energy transition, which involves multiple bills that we have been moving through here for a number of years as well as initiatives in the community and in the energy sector, such as building the big batteries in Kwinana and Collie, and the WA EV Network. The Cook Labor government is committed to preventing climate change, reducing greenhouse gas emissions and being net zero by 2050. That is our ambition for not only ourselves, but also the whole world.

One thing we clearly know about the clean energy transition is that the cheapest forms of energy currently and in the foreseeable future are solar energy, closely followed by wind energy. The latest GenCost report from CSIRO is very clear about this. That is a very handy document, if members want to follow this debate. Solar and wind are going to be the cheapest forms of energy in the world, and WA is well positioned to benefit from this low-cost energy. We are one of five places in the world that have the best balance of solar and wind power: us, south west Africa, the Atacama Desert in Chile, the Middle East, and south west United States and north east Mexico. When we look at all those, we have clear benefits in terms of current infrastructure and construction experience, closeness to the Asian markets and lack of sovereign risk.

We are already a leader in the adoption of solar energy into the south west interconnected system. Perth, with its rooftop solar panels, is one of the most amazing places in the world for adopting solar energy on scale into our grid. This has driven daytime energy prices down and displaced huge amounts of greenhouse gases. However, we are learning that our early evening energy use is more difficult to transition to renewables. The peak times—between the hours of about 5.00 pm to 9.00 pm—are especially difficult. The recent hot days in Perth have led to massive ramping of additional electricity use in the south west interconnected system between about 3.00 pm and 6.00 pm. It is reasonably well known that there have been a couple of days when, as we transitioned from daytime solar panels into the evening, our energy sector was saying, “Phew! We made it through that one.”

This peak time usage can be addressed in a couple of different ways. One is by controlling demand, and we have engaged with that quite well in Perth, but there is only so much of that that we can do. A second way is to shift cheap energy from the middle of the day to the end of the day. This involves storing cheap solar electricity in things like hydro, as is happening in the east with the Snowy 2.0 project, or in lithium batteries, like the big battery we have down in Kwinana. Although WA is not ideally suited to hydro power—we heard the member for Cannington’s joke that all we need is mountains and water—we are going down the road to more battery storage in Western Australia. That gives us a way of shifting our abundant daytime solar energy into the evening, when we need it most. Synergy recently built a 100-megawatt big battery down in Kwinana, and that is up and running. Stage 2 of that project will add an extra 200 megawatts. Stage 2 will cost us about \$2.8 billion. Two more big batteries will be going in at Collie; one is private and the other is with Synergy. Two hundred megawatts for \$2.8 billion: those are important numbers that I would like members to remember later on, when I come back to another issue.

The other alternative for addressing peak hour electricity between 5.00 pm and 9.00 pm is using fuels like hydrogen, coal, diesel and methane—natural gas. Hydrogen is developing fast, but it is not yet a mature technology; it is not commercially mature. Horizon Power is running a hydrogen generator pilot program up in Denham—that is solar to hydrogen. It is in a couple of sea containers outside the town. This puts WA on the front line of hydrogen transition in the world at the moment, but it is not yet a commercially viable technology. Coal is a terrible fuel for using at peak times. Coal-fired generators take a long time to fire up—about a day—and cannot deal with the four-hour peak capacity we need. When we try to run coal-fired power stations that way, they develop technical and engineering problems very quickly, so it is a very poor way to supplement our cheap, renewable energy. Diesel works on small-scale projects, like mine sites, but is too expensive for grid-sized applications.

Methane—natural gas—is technically well suited to complement renewables at the moment. Gas turbines are quick to turn on, taking around 15 minutes. The infrastructure cost is cheap, and we have an abundant supply of natural gas in WA. According to CSIRO’s GenCost 2022–23 report, natural gas is the cheapest source of electricity for dealing with peak consumption in the evenings. If we want firming at the moment, our cheapest option is gas. Much of the world is turning to natural gas as a complement to renewable energy as it walks away from coal and

other fossil fuels. Until the peaks and troughs of renewables can be efficiently addressed with other technologies, gas will be with us for some time. But while gas will be with us for the foreseeable future, we still need to think of the CO<sub>2</sub> emissions and our overall goal of reducing carbon emissions to net zero in 2050. We still need to take the issue of climate change seriously. We need to consider carbon capture and storage seriously. That is where this bill fits in. As a government, we need to provide a solid regulatory framework for the safe and cost-effective transport and storage of CO<sub>2</sub>.

I will try not to go over the minister's speech too much, but I will go over some of the things that the bill will achieve. It has three main objectives. The main one is to provide legislative certainty for greenhouse gas storage processes in WA to decarbonise industry. The second one is to enable the exploration and production of naturally occurring hydrogen, which is often in with other chemicals and other gases such as methane or helium. The third one is to address operational amendments relating to the insertion of polluter-pays provisions, royalty metering, underground storage of petroleum and blending of additives in pipelines.

The bill will amend three principal petroleum acts: the Petroleum and Geothermal Energy Resources Act 1967, the Petroleum (Submerged Lands) Act 1982 and the Petroleum Pipelines Act 1969. The bill includes provisions for property rights for greenhouse gas storage formations, acreage release for greenhouse gas exploration titles, retention leases and injection licences, injection of gases into geological formations and site closure and long-term liability requirements. It will provide an extensive regulatory framework for greenhouse gas storage and transport. It will not regulate the carbon capture and storage side of the equation but the transport and storage. Western Australia has a lot of geological formations that are well suited to the underground storage of gases. In the same way that we have a number of natural gas formations in the Perth Basin and the North West Shelf, they are equally good formations for the storage of CO<sub>2</sub> gases.

To provide some background to my support for this bill, I want to talk a bit about the Parliamentary Friends for Clean Energy. The Parliamentary Friends for Clean Energy group includes the member for Churchlands, Christine Tonkin, MLA; Hon Dr Steve Thomas, MLC; and Hon Dr Brad Pettitt, MLC. The four of us are co-convenors of that group. We do not always agree with each other, but we are all interested in the renewable energy future. We meet during parliamentary sittings and hear from people working in the field. One thing I have learnt through those sessions is to be technology agnostic—remember the big goal but be technology agnostic. I used to think that there would be one or two amazing technological advances that would be the solution to greenhouse gas emissions and climate change. Instead, I have learnt that there is no single silver bullet in this area. There is a slow accumulation of technological changes, but it is happening very quickly right now. There are a huge number of technological innovations happening all the time and, as legislators, it is very hard for us to predict which ones will be successful and which ones will not. We have to be involved in all of them in some way. We have to encourage research in all these areas, but we do not know which ones will make it to commercial application at the end of the process.

I will give members a few examples. When people talk about batteries, often they refer only to lithium cobalt batteries, which are the only viable option for applications as diverse as mobile phones right the way to electrical-grid scale applications, such as the big batteries in Kwinana. Lithium ferrophosphate is a similar kind of battery that is safer and almost as powerful as lithium cobalt. It is finding its way into a lot of car batteries. There are also vanadium batteries. Perth-based company AFB—Australian Flow Batteries—has a vanadium battery solution that runs a mine site and fits in a shipping container and will work for at least 25 years. In fact, the material on the inside is likely to outlast the container that it sits in in terms of how long it can be useful for. It has a different set of specifications. It cannot be fitted in a car because it is very large and heavy. But on a mine site where there is a bit of space, it is easily done. It will solve different types of applications. Where weight and space are not important, vanadium flow batteries will be really useful. It is a different-way-of-thinking technology from a Perth-based company, and it is getting its stuff out right now.

Let us look at hydrogen. It is commonly supposed that hydrogen storage and transport is a ridiculously expensive process that involves cooling hydrogen to just above absolute zero then using specially designed ships to transport gas to foreign markets. That is what most people think. An alternative suggestion is to transport hydrogen in the form of ammonia, but that also has a number of safety complications that raise questions. In a session of Parliamentary Friends for Clean Energy, we heard from Mark Rheinlander and Lucas Pickering from Carbon280. They showed us a hydrogen storage and transport solution that works at room temperature, is non-toxic and non-flammable and can be held in something as simple as a lunchbox; in fact, they had one there for us and we passed it around the table. It is a radically different way of thinking about hydrogen storage. Some people claim that hydrogen will never be an efficient fuel because the sunlight-to-hydrogen process has too many steps—sunlight to solar PV to electrolysis to hydrogen. However, there are some really interesting developments in which the process goes directly from sunlight to hydrogen, with sunlight directly splitting water atoms to produce hydrogen, bypassing the in-between steps and inefficiencies.

A lot of other technical innovations are going on. CSIRO is doing great work in this space, much of it right down the road in Kensington. The private sector is also doing amazing work. I do not know which work will be successful

and reach commercial scale. The only thing that I can be sure of is that innovation will occur, and combinations of innovations will lead us to new possibilities. The clean energy transition is well underway. One of the possibilities of the clean energy transformation is carbon capture and storage. A project running at Gorgon is at about 30 per cent efficiency of where it wants to be; there is still some way to go. Having had a briefing from Gorgon representatives about what is being done and why the set targets have not been reached, I am confident that, at some point, it will be much more successful in reaching those targets.

I have been and remain sceptical of large-scale carbon capture and storage to reduce greenhouse gas emissions. But I am learning to be technology agnostic, and if something might work, we need a solid regulatory environment to work around it. It is good that this government is taking climate change seriously and exploring every option. We will leave no stone unturned.

We look at nuclear energy every now and then and ask, “Is this a mature technology that we can use?” Over the next couple of minutes, I will provide an analysis of that. We have seen the nuclear debate come up a lot more recently, with Peter Dutton ramping up his campaign against the Albanese government’s renewable energy goals, making the claim that next-generation nuclear technology is the cheaper, more reliable alternative to wind farms and solar. Steve Thomas, MLC, member for South West Region, said the WA Liberal government would consider replacing Collie’s coal-fired power stations with nuclear reactors, but only if the economics stacked up. We also saw people like Andrew Hastie attacking the potential for a wind farm off Bunbury because it would be an eyesore and disadvantageous to his electorate—yet he is still in favour of a nuclear power station in Collie, which has me scratching my head.

[Member’s time extended.]

**Mr G. BAKER:** Often these proponents of nuclear power talk about small modular reactors as a way of cheaply providing nuclear energy. There are a couple of problems with small modular reactors. The first is that nobody has really built one yet, so they remain theoretical. There was a flagship project that was going ahead in Idaho. The Utah Associated Municipal Power Systems and NuScale Power launched the Carbon Free Power Project to be built in Idaho by 2030. This project was canned in November last year. Let us look at what was going on there. It was part of a long-term strategy to reduce carbon emissions and replace ageing coal-fired plants with carbon-free fuel, which is good, and small to full-sized flexible power generating source—so firming power as well as baseload, which is all good. The project called for constructing a small modular reactor power plant in Idaho using SMR technology. It would have featured a number of 60 megawatt to 77 megawatt modules that would come together to generate 462 megawatts and come online in 2029. It was intended to produce power at \$US58 per megawatt hour, and by the time the project collapsed, that amount had risen to \$US89 per megawatt hour. But that included a \$US4 billion federal tax subsidy from the US government and a subsidy of \$US30 per megawatt hour from the Inflation Reduction Act. The effective cost of the power was going to be \$US129 per megawatt hour. Including inflation since those figures were made, by the time the plant was in operation, the figure would have been \$A155 per megawatt hour. This is for a project that never even got off the ground. It did not even start to get built. The cost of the project was going to be \$A14 billion for 462 megawatts. Compare that with the cost of a stage 2 big battery, at \$2.8 billion for 200 megawatts. Nuclear power ticks a couple of boxes for being carbon free and hitting some of these carbon goals, but the price is just outrageous; it is just astronomical, and it is a path we really cannot afford to go down. It is a bit of a disappointment that the member for Cottesloe is not here today, because I would have been in furious agreement with him that nuclear power is not a path we can afford to go down. That project in Idaho was terminated on 8 November 2023. As the member for Cannington says, it is not the green movement that stops nuclear power stations right now, it is the merchant bankers.

As I said, I am a technology agnostic, but I have two guiding principles: does it bring us closer to net zero by 2050 and is it cost-effective? This bill provides a good regulatory framework for the introduction of carbon capture and storage at scale. Should carbon capture and storage meet those two principles, this bill provides a great framework for its regulation.

I commend the bill to the house.

**MS J.J. SHAW (Swan Hills — Parliamentary Secretary)** [3.24 pm]: I rise to make a contribution to the debate on the Petroleum Legislation Amendment Bill 2023, which, despite its name, deals with carbon capture and storage. CCS, or carbon capture and storage, refers to technologies that enable the mitigation of carbon emissions from large point sources—such as power stations, refineries and other industrial facilities—or the removal of existing carbon dioxide from the atmosphere. It typically involves stripping CO<sub>2</sub> from the emissions stream of an industrial process, usually based on fossil fuels such as electricity generation, LNG, cement, steel, alumina, critical minerals or fertiliser production, compressing that CO<sub>2</sub>, transporting it either via pipelines or a tank, and then injecting it into porous, sealed rock formations.

It is important to highlight that CO<sub>2</sub> is more easily stripped from some emissions streams than others. Removing CO<sub>2</sub> from air utilising CCS technology is far more challenging. It is important to appreciate that many of the things

that we produce with fossil fuels currently have very few, if any, other energy sources for production. They are hard to abate and present some of the greatest challenges for global decarbonisation efforts. It is impossible to imagine a construction industry without cement, an agricultural sector without fertiliser, or an energy sector without steel for transmission towers, aluminium conductors, steel reinforced cabling or critical battery minerals.

Energy systems cannot operate without firming generation and power quality technologies. It is not a philosophical position; it is physics. At the moment, wind and solar resources alone simply cannot deliver what we need to keep the lights on. While we pursue technologies that can, our only option in WA is to procure system services from fossil fuel generation technologies. It is a constraint that faces many other energy systems. The products I have spoken about are essential to modern life and, importantly, many are key to energy transition. If we cannot produce the steel, alumina and critical minerals, the increased penetration of renewable energy technologies is impossible. We cannot turn those industries off without facing major societal and economic upheaval and they cannot be easily moved onto other energy sources. Indeed, many of them may be required to ramp up production to construct the assets that we will need for energy transition. It is clear that we must find ways to produce those commodities with as little carbon footprint as possible.

The international community has set global emissions reduction targets and many thousands of our best scientists, engineers, chemists, physicists and policymakers are working tirelessly to remove our reliance on fossil fuels. The reality is that in the near term we must find ways to work with them and reduce their carbon impact to the greatest extent possible, while we adapt our industries and develop new energy technologies. CCS is expected to play a crucial role in meeting global climate targets and many scientific bodies support its use, including the Intergovernmental Panel on Climate Change, the International Energy Agency, the International Renewable Energy Agency, Australia's own Climate Change Authority, the Commonwealth Scientific and Industrial Research Organisation, Geoscience Australia, the European Commission and the UK's Climate Change Committee.

None of those bodies view CCS as a complete answer to the challenge of managing our carbon emissions, nor is it; however, it does have niche applications, albeit perhaps time bound, and it will be a key part of global efforts to tackle climate change. That being the case, it must also be accompanied by dramatic emissions cuts and a range of other abatement mitigation and adaptation activities across industry, government and society. The IEA, IRENA, IPPC, and Bloomberg New Energy Finance have all produced long-term energy outlooks, which rely on a rapid expansion of CCS in order to limit global temperature rise to 1.5 degrees.

Indeed, in its flagship report on the role of carbon capture and storage in clean energy transition, the International Energy Agency made it clear that —

**Reaching net zero will be virtually impossible without CCUS**

In the September 2023 update to its publication titled *Net zero by 2050: A roadmap for the global energy sector*, the IEA projected that CCS could contribute up to eight per cent of cumulative global emissions reductions. Of the countries with a net zero pledge in place, around half have identified CCS as contributing in some way to the target, although there is a wide range across countries. Some countries see it as a key pillar of economy-wide decarbonisation, including as an option to decarbonise electricity in industrial sectors. Others see CCS as having a limited role, such as focusing only on cement decarbonisation or technology-based carbon removals or restricting CCS activities to research and development efforts. Australia lists CCS as part of its nationally determined contributions under the Paris Agreement. Western Australia sees CCS as more than a means to acquit an obligation; we see the potential to become a world leader in the industry.

However, CCS is difficult. It is expensive, technically complex and operationally challenging; nonetheless, around the world, many hundreds of projects are under development, significant investments are being made into the technology and existing project operators are learning through trial and error how to improve it. That is particularly the case with our Western Australian Chevron Gorgon project. Our trading partners who are investing in their own CCS projects will look to us for decarbonised energy suppliers applying CCS technology and will also be keen to explore potential export sequestering opportunities. They are also rolling out a range of policy initiatives and support mechanisms to facilitate industry development.

In the United States, there are 15 CCS facilities currently operating, and an additional 121 facilities are under construction or in development, typically associated with natural gas processing and ammonia and ethanol production. Annual federal appropriations for CCS research and related programs totalled \$US5.3 billion over the 2011–23 period. The 2021 Infrastructure Investment and Jobs Act provided \$US8.2 billion in advance appropriations for CCUS programs over the 2022–26 period, including \$US100 million for the Department of Energy to design pipelines to transport compressed CO<sub>2</sub> emissions to underground storage, \$US2.1 billion in loans and grants for the private sector to build the pipelines, and \$US3.5 billion to construct four hub facilities to remove carbon dioxide from the atmosphere. The 2022 Inflation Reduction Act includes almost \$US370 billion of incentives to reduce carbon emissions, including targeted support for CCUS via tax credits.

Last year, Japan's Ministry of Economy, Trade and Industry set a CCS target of six million to 12 million tonnes by 2030, signalling that it, too, sees the technology as essential to achieving its goals under the Paris Agreement. Japan's state-owned energy agency, Japan Organization for Metals and Energy Security, or JOGMEC, has selected seven potential CCS projects for financial support, aiming to accelerate development and utilisation. The form and quantum of JOGMEC support for each project will depend on future negotiations with the winning consortiums, but two million tonnes per annum of the carbon it seeks to sequester has been identified for an export project in an unspecified area of Australasia. The trade and industry ministry has allocated around ¥3.5 billion in its 2023–24 initial budget to support advances in CCS projects through the state-owned enterprise.

South Korea, with its economy heavily based on steel, cement and petrochemicals, also views CCS as one of the key means to achieve its 2050 carbon neutrality goal. In 2023, the Korean government revised its CCS targets from the original 10.3 million tonnes as at October 2021 to 11.2 million tonnes. On 5 January this year, an empirical project for the East Sea gas field utilising CCS technology valued at ₩2.9529 trillion was selected as a preliminary feasibility study to be pursued as a national project. Very recently, on 6 February, South Korea passed its first integrated law on CCS, consolidating over 40 individual pieces of legislation covering the sector. The Capture, Transportation, Storage and Utilization of Carbon Dioxide Act provides for the development of storage facilities, transportation, permitting, monitoring, the establishment of cluster sites and government support for CCS research and development and commercialisation, including subsidies and loans for developing projects, investments using resources such as climate response funds, training of skilled personnel, international cooperation, standardisation of technologies and the establishment of CCS promotion centres.

The European Union, under the Net-Zero Industry Act, aims to reach an annual carbon storage capacity of 50 million tonnes by 2030 and has designated CCS as one of eight strategic net zero technologies. Individual European nations are pursuing ambitious CCS plans, often in conjunction with other energy transition technologies such as hydrogen production. Individual nations are adopting innovative financial mechanisms to support the commercialisation of abatement technologies and the EU, as we know, has a well-established market mechanism designed to facilitate the most efficient allocation of capital towards carbon abatement. This is a dynamic space with a lot of technical, but more importantly, policy and financial innovation.

The differing approaches from our trading partners illustrate the many ways other jurisdictions are approaching not just CCS, but energy transition, climate change and economic diversification more broadly by legislating to support infrastructure development; providing permit and approvals certainty; investing in research and innovation; creating hubs, technology precincts and strategic industrial areas; leveraging existing internal economic capacity and know-how; focusing on education pathways and workforce development; setting policies that facilitate inbound capital investment, including the use of innovative financial mechanisms; partnering with industry, other national and subnational governments; and working through state-owned enterprises to support technology commercialisation and industry development.

Last year I was privileged to explore many of these economic development initiatives with Professor Rod Glover, through Monash University's McKinnon Institute, and at Harvard Kennedy School with rockstar economist Professor Ricardo Hausmann and world-leading climate scientist Professor Dan Schrag, under whom I have studied twice at Harvard. Late last year I also explored many of these themes with US state and federal governments and think tanks and Australian, Indian and Japanese colleagues during my participation in the international visitor leadership program delegation on the Quad regional partnership. These fantastic opportunities highlighted the need for us to think outside the box and to look outside ourselves for policy innovation and pursue opportunities for greater collaboration. There is much we can learn from industry policy innovations in other jurisdictions and much we can achieve through working together. There has never been a more important time to approach these challenges with an open mind.

It is incumbent on governments to create the right investment and regulatory environments for technologies to emerge in response to climate change. Our partners are doing it. The Cook Labor government is also doing it. It is particularly important that we do it here in Western Australia, on account of the structure of our economy and the role we can play in the global energy transition.

At the Energy Transition Summit last year, the Premier charted a new course for economic development and climate action in Western Australia. He set our sights on a far wider horizon, outlined a more ambitious and innovative economic agenda than we have ever seen in this state and, importantly, highlighted Western Australia's growing responsibility to produce the materials required for the rest of the world to decarbonise. He described our capacity to supply the world with the raw materials essential for the shift towards net zero. He referred to the fact that WA supplies nearly half of the world's lithium and continues exploration at rates never seen before; the fact that WA is a top-five global producer of rare earths, nickel and cobalt; the fact that we have a burgeoning green hydrogen and ammonia industry; and the fact that we continue to work our way up the supply chain, not only digging things up, but refining and manufacturing renewable energy products. He noted that an important part of our role will be the provision of transition fuels. He stated that global transition is not always as simple as quitting

fossil fuels and replacing it with renewables; that it would devastate economies and plunge major cities into darkness and see coal-fired power plants turned back on, but that we can switch to cleaner alternatives as they prepare for renewables. He said that we can support our international partners to transition through our world-class natural gas resource delivered to world's best practice environmental standards, including carbon capture and storage.

As someone who worked in the energy sector for well over a decade, who quit my job in the sector because I wanted to see more meaningful action on climate change, and who has continued to work on and study climate science, economic development and energy economics, I completely agree with this statement. Without our gas, our major partners like Japan and Korea would have no choice other than to use more coal. These jurisdictions want to move to renewable energy, but their decarbonisation and energy transition plans are based on gas to reduce carbon intensity in the near term. Our trading partners are relying on us to support the attainment of their Paris targets. They have selected the product that we supply as the best pathway to achieve their national contributions to net global emissions reductions. Ultimately, that is what we should all be aiming for: net global emissions reductions. That was a key message of the “Leading green growth: Economic strategies for a low-carbon world” program that I took at Harvard Kennedy School. We have to focus on how we leverage our economic capacity and advantages to best contribute to global efforts. We have to think about what we can do in WA to advance global decarbonisation and support others’ journeys.

The reality is that the inequitable distribution of economic capacity, internal know-how and natural resource endowment means that an increase in emissions in one place associated with leveraging these advantages and supplying the world with what it needs will mean far less social and economic upheaval in other places and far greater global emissions reductions—for example, where increased emissions in WA from more LNG, alumina, steel or critical minerals production leads to global net emissions reductions as our customer jurisdictions move from coal to gas and increase electrification from renewables and battery technologies over time. This is truly an area in which we can take a global leadership position. The economic opportunities for Western Australia are significant.

[Member’s time extended.]

**Ms J.J. SHAW:** With regard to carbon capture and storage, in November last year, the WA LNG Jobs Taskforce released the *CCUS hubs study*, produced by CSIRO and the Global CCS Institute. It found that CCS is critical to achieving net zero. It is currently the only technologically viable option to decarbonise a number of existing emissions-intensive industries including gas processing, aluminium refining and cement and fertiliser production; and it is a globally tested, safe and established method for decarbonisation that is already being established globally through government and industry partnerships. The study found that WA has the capacity to store not only its own carbon, but that of other carbon emitters, including overseas carbon emitters that are already seeking carbon storage options; that we have large-scale emissions intensive industries that are clustered in areas where CCS hubs can play an important part of the emissions reduction portfolio; that we have infrastructure that can be leveraged or repurposed for CCS hubs; that we have an existing workforce with the skills and experience to develop CCS projects; that CCS hubs would support other decarbonisation initiatives, particularly where co-located with hydrogen and ammonia industries; and that CCS hubs have the potential to attract significant inbound capital investment and strengthen economic relationships with our regional partners.

In response to this report, Premier Cook announced that the government will invest \$4.3 million towards a carbon capture, utilisation and storage action plan, putting WA at the forefront of the global industry. The action plan will aim to accelerate the deployment of proven CCS technologies in WA, support research into new CCUS technology and attract investment. Today’s legislation is also an important step forward insofar as it creates a regulatory framework to facilitate industry development. The storage of greenhouse gases is not currently regulated in WA, other than for the Gorgon gas project, which is also the world’s largest CCS project. The commonwealth introduced greenhouse gas storage legislation in 2006. The WA coalition government introduced similar legislation in 2012, but it was never enacted. This bill will finally allow WA to play a role in using CCUS to decarbonise industry. The bill will also enable the exploration and production of naturally occurring hydrogen and address operational amendments relating to the insertion of polluter-pays provisions, royalty metering, underground storage of petroleum and the blending of additives in pipelines.

The state’s existing suite of petroleum legislation has been adopted as the vehicle for the greenhouse gas regulatory regime, and that makes sense given that greenhouse gas storage uses similar technologies to that of the petroleum industry. Many of the provisions in the bill follow the existing petroleum legislative regime, including work program-based acreage releases and title types, as well as allowing for existing well integrity and environment plan regulations to be amended to include greenhouse gas operations following the passage of the bill.

The bill includes property rights for greenhouse gas storage formations, acreage release for greenhouse gas exploration titles, retention leases and injection licences, site closure and long-term liability requirements. Further provisions include the ability to regulate direct access to suitable storage sites under specific circumstances and

allows for the transport of greenhouse gases by pipelines to depleted petroleum reservoirs and other potential storage sites.

The bill does not include the capture of carbon. It covers only the storage, transport and injection of carbon. The capture takes place at industrial sites, and those are governed by separate legislative provisions. It also does not cover Chevron's Gorgon project, which has its own state agreement.

The bill will introduce the ability to explore for and produce naturally occurring hydrogen, which often occurs with helium and methane. It seeks to extend the existing suite of petroleum titleholders to explore for hydrogen on an opt-in basis in which titleholders can apply to the responsible minister for additional rights for a prescribed regulated substance. Existing titleholders will only be impacted if they elect to opt-in.

The bill will also enable the use of hydrogen in pipelines. I note that aspects of the legislation do not extend to manufactured hydrogen and I think that is very interesting. I hope that we will not need to revisit that at some point in the future. Molecules are molecules, and I particularly hope that there are no unintended consequences, particularly from an economic regulation perspective.

I want to speak about environmental issues in particular. Members will be aware that carbon injection is currently commonplace across the global oil and gas industry around the world for enhanced oil recovery and this CO<sub>2</sub> is not stored. That is not covered in this bill. We are expressly only facilitating "storage" here. The government will only grant licences for carbon dioxide injection at sites proven to be geologically stable with an appropriate seal or trapping mechanism. The bill will also provide for ongoing monitoring at storage sites.

I have few final points to make. This legislation is one part of a wide range of activities that the Cook Labor government is taking to meaningfully address climate change. Energy transition, climate action and economic diversification are at the very heart of this Premier's agenda. In the last state budget, we allocated \$2.8 billion towards renewable energy generation, storage and transmission, including the big batteries in Collie and Kwinana. We have confirmed a further \$1 billion comprising \$708 million towards our south west grid upgrades, \$160 million for strategic industrial areas investment incentives and \$60 million to boost clean energy businesses through the new investment attraction fund. A further \$74.4 million was allocated towards our sectoral emissions reduction strategies, including \$31 million towards Horizon Power batteries and planning, \$11.2 million to extend the clean energy future fund and \$6.4 million to boost green approvals—cutting green tape, getting projects up faster.

We are constructing the longest state electric vehicle charging network in Australia. We are deploying standalone power systems and distributed energy technologies at an unprecedented rate. We are reforming energy markets to encourage and accommodate more renewable energy. We are trialling virtual power plants. We are investing in the Denham hydrogen demonstration plant and have transitioned Esperance from reticulated gas to electrification. We have grid-scale community batteries at constrained points right across our main network. We have increased household solar and energy efficiency programs in social housing. We are facilitating new large-scale wind farms in the midwest and renewables in the Pilbara. We are promoting energy storage systems in regional towns and we delivered the key performance indicators in our first hydrogen strategy and will shortly release an update to that document. I am particularly excited to have been asked by the Premier to do some work in the hydrogen space. It is an exciting place to play.

As I outlined previously, we have committed \$4.2 million to progress CCS for hard-to-abate activities. I could speak to a whole heap of other initiatives outside of energy in agriculture, parks, national parks and conservation estates, but I probably do not have time today. I might discuss those when we cover the climate bill. I just want to make one final point. I have stated that CCS is globally acknowledged to be part of the carbon abatement solution. I have stated that hard-to-abate sectors have a vital role and must be supported to reduce emissions and eventually transition away from fossil fuels.

Carbon capture and storage is one of a range of measures that we can explore to address the huge challenge of climate change, but there are very important environmental values that we must always have firmly in mind. Abatement is not and should not be our sole consideration with climate change; we also have to consider adaptation and mitigation. Other incredibly important values must always be upheld, such as the preservation of pristine, unique wildernesses like those in the Kimberley; the protection of waterways; and respect for First Nations people. No matter the project or commodity, we must always ensure that we undertake robust and thorough environmental assessment and community and First Nations consultation processes.

No state government has ever placed climate action at the heart of its agenda to the extent that the Cook government has done. No state government has done more than the Cook Labor government to meaningfully address climate change. No state government has appreciated Western Australia's important role in supporting global energy transition by providing so many of the key commodities essential to our trading partners' carbon abatement pathways and contributing to net global emissions reduction. No other government has ever appreciated the significant

economic opportunity associated with climate action and energy transition, articulated that vision so clearly or pursued it with such ambition.

I would like to finish by noting that the vast majority of this legislation was developed under the member for Cannington's watch as the Minister for Mines and Petroleum. He has announced his upcoming retirement from Parliament at the 2025 election, and I want to congratulate him on a remarkable career. I thank him for his friendship and mentorship; he is one of the few energy geeks who really welcomes a geek-out session on all things to do with the energy transition. I think he has made a remarkable contribution to the sector. He is very well respected. I am sure that once he leaves Parliament, that will not be the last we see of him in that space. I certainly look forward to engaging with him in an ongoing way.

I commend this bill to the house as yet another step forward for this state's leadership in climate action.

Debate adjourned, on motion by **Mr S.J. Price**.