Reforming the NSW Energy Savings Scheme to drive down power bills and emissions

Prepared for the Energy Savings Industry Association

February 2026

Enlightening environmental markets

Green Energy Markets

Synopsis

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- This report examines options for how the NSW Government's Energy Savings Scheme could be reformed to ensure it continues to deliver significant energy bill savings to consumers, reduce energy infrastructure costs as well as significant emission reductions.
- It finds that if the NSW Government was to implement key reforms to how the scheme operates which are already under consideration it could make a significant impact in addressing four pressing challenges facing the NSW community:
  - **Cost of living** – The prices of gas and electricity have risen significantly over the past few years placing pressure on household budgets. An enhanced NSW ESS could deliver a $5.1 billion reduction in wholesale energy costs for consumers.
  - **A looming shortage of gas –** LNG exports and the decline of gas fields in Bass Strait and Cooper Basin means that gas supplies to the South-East Australian states are going to be harder to obtain and increasingly expensive. We project that an enhanced ESS could deliver 22 petajoules of annual gas savings by 2040 – this is equal to 90% of the gas currently consumed in power generation in NSW.
  - **Reducing carbon emissions** – The NSW Government has commitments to lower greenhouse gas emissions by 50% below 2005 levels by 2030 and by 70% by 2035. This report finds an enhanced ESS could turn around the rise in residential and commercial gas emissions, delivering around 2 million tonnes of CO2 emission reductions per annum by 2040.
  - **Timely replacement of aging coal generators** – Three out of the four NSW coal generators are approaching retirement age and due to close within the next ten years. An enhanced ESS could deliver around 8,400GWh per annum in electricity savings which is equivalent to the annual output of one of those retiring plants - Vales Point.
- For NSW to effectively exploit the opportunities from energy saving and distributed energy technologies the Energy Savings Scheme requires several enhancements:
  1. The first and most immediate step is to better reward energy and emission savings from reducing gas consumption.
  2. The second step is to expand the number of activities that can create Energy Savings Certificates and streamline the administrative processes for creating certificates under some methods.
  3. The third step is to correct for the fact that the scheme currently applies a price cap (penalty price) on certificates that undervalues the economic benefits from emission and energy savings.

NSW faces 4 pressing energy challenges

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The NSW Government faces four pivotal energy challenges that require urgent action:

1. **Containing the cost of rising energy bills** – The residential price of electricity has risen by around a third and that of gas by almost a quarter over the past five years. Costs to business have also risen substantially with the wholesale cost of gas having roughly tripled in price since 2015.
2. **A looming shortage of gas –** LNG exports and the decline of gas fields in Bass Strait and Cooper Basin means that gas supplies to the South-East Australian states are going to be harder to obtain and increasingly expensive. This may potentially lead to the need to import gas from overseas which would lead to large rises in the price of gas and leave the State vulnerable to supply disruptions from potential conflict in the Middle East or resource nationalism in the United States.
3. **Reducing carbon emissions** – While NSW's emissions from the electricity sector are likely to decline substantially over the next decade, very little progress is being made in containing emissions from the use of gas. For the NSW Government to meet its emission targets requires dramatic reductions across the entire economy. Yet NSW emissions from non-electricity stationary energy use are expected to fall by just 3.7% between 2025 and 2030. Progress improves to 2035 but emissions will remain close to 90% of what they were last year.
4. **Timely replacement of aging coal generators** – Three out of the four NSW coal generators are approaching retirement age and due to close within the next ten years. Construction of new renewable energy projects will be pivotal to this task but there are serious bottlenecks involved in rolling these projects out flowing from long lead times to build new grid infrastructure and undertake planning and environmental assessments and approvals. Delays in developing new supply could leave the power system reliant on old and increasingly unreliable and inflexible coal power plants which are more prone to unexpected break-downs that lead to price spikes and increased risk of power supply outages.

Energy saving technologies can play a pivotal role in addressing challenges

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- Much of the political debate that takes place in our media outlets tends to only consider options for how we might obtain additional ***supply*** of energy to address our energy challenges. This is undoubtedly important, yet also horribly blinkered because it fails to consider the other side of the economic equation – that we can also do things to adjust ***demand*** for energy.
- These opportunities on the demand-side often have the advantage that they are lower cost and faster to roll-out than new supply, while also reducing carbon pollution.
- There is a substantial body of research indicating that investments in energy efficiency and distributed energy technologies could deliver large savings in household and business' energy bills and emissions with benefits that would outweigh the cost of these investments.
- Research studies by the Grattan Institute, the Institute of Energy Economics and Financial Analysis, CSIRO and the Australian Energy Market Commission indicate that households could more than halve their energy bills through adoption of technologies such as:
  - Replacing conventional electric resistance and gas water heaters with heat-pump technology;
  - Replacing electric resistance and gas space heaters with energy efficient reverse cycle air conditioners;
  - Upgrading home building shells with insulation and weather sealing; and
  - Installing solar and battery systems.
- Research undertaken by Common Capital on behalf of the NSW Government has also identified the potential for the commercial sector to cost effectively reduce its energy consumption by 39% and the industrial sector by 13% via energy efficiency and fuel switching activities.
- A pre-existing government program - the NSW Energy Savings Scheme - provides a powerful mechanism to accelerate the roll out of the bill saving technologies.
- This scheme has been in operation since 2009 and acts to help households and businesses improve their energy efficiency and lower energy bills by making investments in energy saving technologies more affordable through awarding energy savings certificates for energy savings which electricity retailers purchase to meet a state-wide energy savings target.
- A 2025 review of the scheme found that activities implemented between 2019 and 2023 are estimated to deliver almost 29,000 GWh of energy savings and around $8 billion in energy bill savings over their lifetimes. The scheme has also placed downward pressure on energy prices for all consumers that has saved households $98 per year and NSW businesses $277 per year.
- The Energy Savings Scheme can play a central role in driving demand-side solutions to NSW's energy challenges because it:
  - can be employed to support a very broad range of energy savings technologies across households and businesses;
  - relies on competition between multiple technologies and between multiple providers/installers to drive activities that deliver energy savings at the lowest cost.

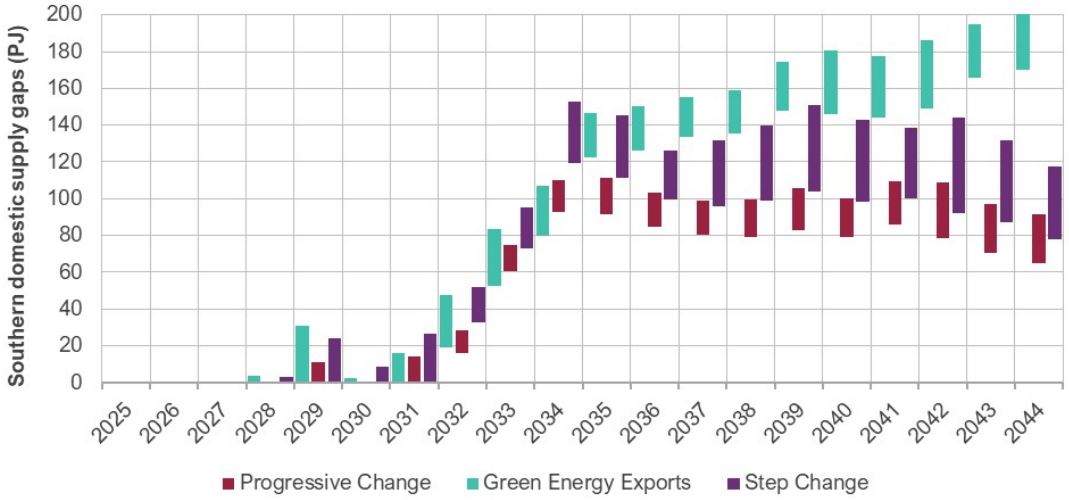
With reform the Energy Savings Scheme can play central role

- The NSW Government is currently evaluating how the structure of the ESS could be improved. This provides an important opportunity for reforms that could ensure the scheme makes a valuable contribution towards addressing NSW's 4 key energy challenges.
- To assist the NSW Government in this process, Green Energy Markets was commissioned by the Energy Savings Industry Association to analyse options for how the ESS could be reformed to better contribute towards NSW's energy challenges.
- While the ESS has proven to be a powerful tool for driving the adoption of energy saving technologies, a series of changes are unfolding that require the ESS to evolve and adjust its settings.
    1. There is a need for the scheme to put greater emphasis on saving gas and driving electrification. This will assist in ensuring the scheme continues to deliver significant emission reductions as electricity supply decarbonises (due to rising use of wind and solar power). Also, there is now a heightened risk of gas shortages in the near future or heavy reliance on overseas imports.
    2. The scheme has historically been heavily reliant on activities to upgrade the energy efficiency of lighting for which the battle has been largely won. With lighting activities no longer eligible, effort needs to be dedicated expanding the scheme to support a greater range of new energy saving activities.
    3. The prices of electricity and gas have risen dramatically over the past decade. Also, it has become apparent that the economic damage associated with greenhouse gas emissions is worse than previously thought. This means that the economic value from saving energy is far higher than it used to be and so the scheme needs to adjust its settings to reflect that higher value.
- These drivers for reform are explained further in the subsequent pages.

Reform priority – 1. Increase the reward for gas energy savings

- A key reason for why we need to place greater priority of saving gas is that the main sources of gas that NSW has historically relied upon – the Moomba fields of South Australia and Victoria's Bass Strait – have been substantially depleted.
- Alternative sources of supply in Queensland gas fields meanwhile are heavily tied-up in export contracts and would require new, expensive gas pipeline infrastructure that would take many years to be planned and built.
- Completely new gas fields meanwhile are likely to represent expensive sources of supply and will also take many years to develop and construct.
- According to AEMO's 2025 Gas Statement of Opportunities there are, "risks of peak day shortfalls from 2028 and structural supply gaps emerging from 2029" that will affect NSW, Victoria and South Australia.
- AEMO's forecast supply shortfalls by each year according to three alternative scenarios are detailed in the chart to the right.
- These shortfalls may potentially lead to the need to import gas from overseas which would lead to large rises in the price of gas and leave NSW vulnerable to supply disruptions from potential conflict in the Middle East or resource nationalism in the United States.

Range of annual supply gaps in NSW, SA and VIC

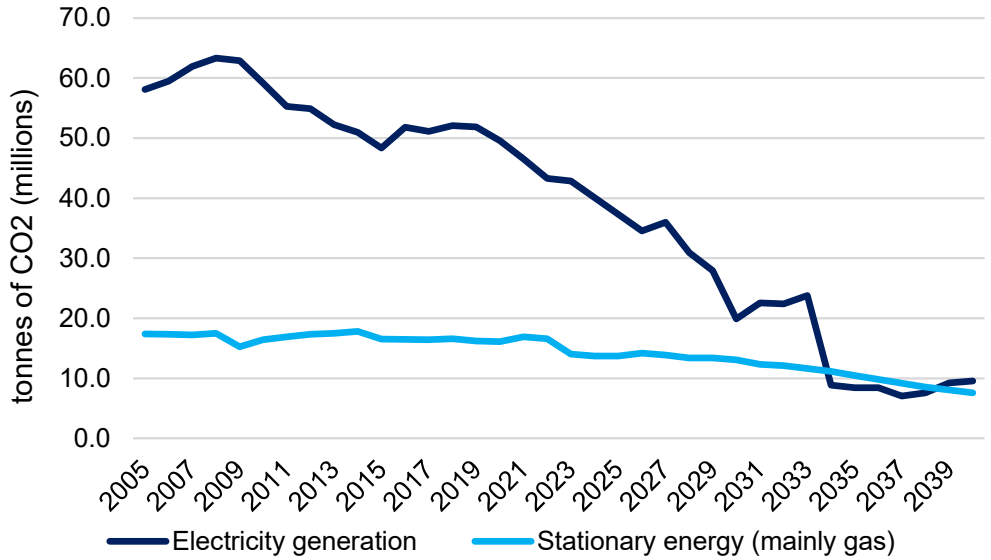


Source: AEMO 2025 Gas Statement of Opportunities

Reform priority – 1. Increase the reward for gas energy savings

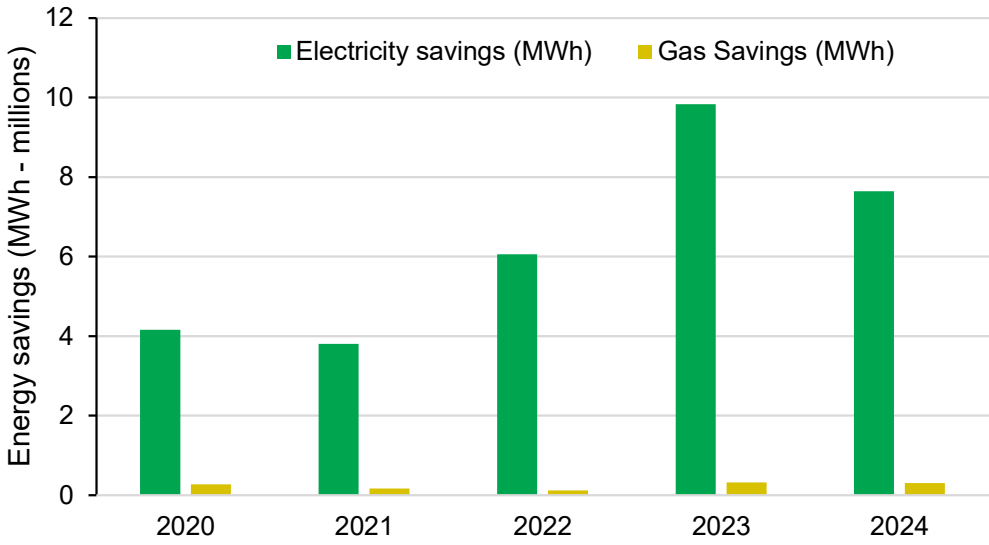
- Another reason for why the ESS needs to be adjusted to place greater emphasis on gas relates to the changing nature of the challenge to address climate change emission reduction goals.
- Historically electricity was a highly carbon intensive fuel. But substantial growth in renewable energy is significantly reducing its carbon emissions. Gas on the other hand does not have a realistic path to decarbonise, with the chart below showing the expected rapid reduction in electricity emissions relative to gas.
- NSW emissions from non-electricity stationary energy use are expected to fall by just 3.7% between 2025 and 2030. Progress improves to 2035 but emissions will remain close to 90% of what they were last year.

NSW annual emissions from electricity and stationary energy 2005 to 2040



- Concerningly, stationary energy emissions from the residential sector are projected to be 20% higher in 2030 than they were in 2005. Meanwhile the commercial sector's emissions will be 45% higher than they were in 2005. Based on research by Common Capital, IEEFA, the Grattan Institute and ClimateWorks these sectors offer potential for highly cost-effective energy savings and abatement by switching out of gas to electrical appliances and equipment.
- To date the ESS has been dominated by energy savings from electricity, with only minor savings from gas. There is also potential for emission reductions and energy bill savings by substituting electricity for other fossil fuels, like the use of diesel for agricultural water pumping.

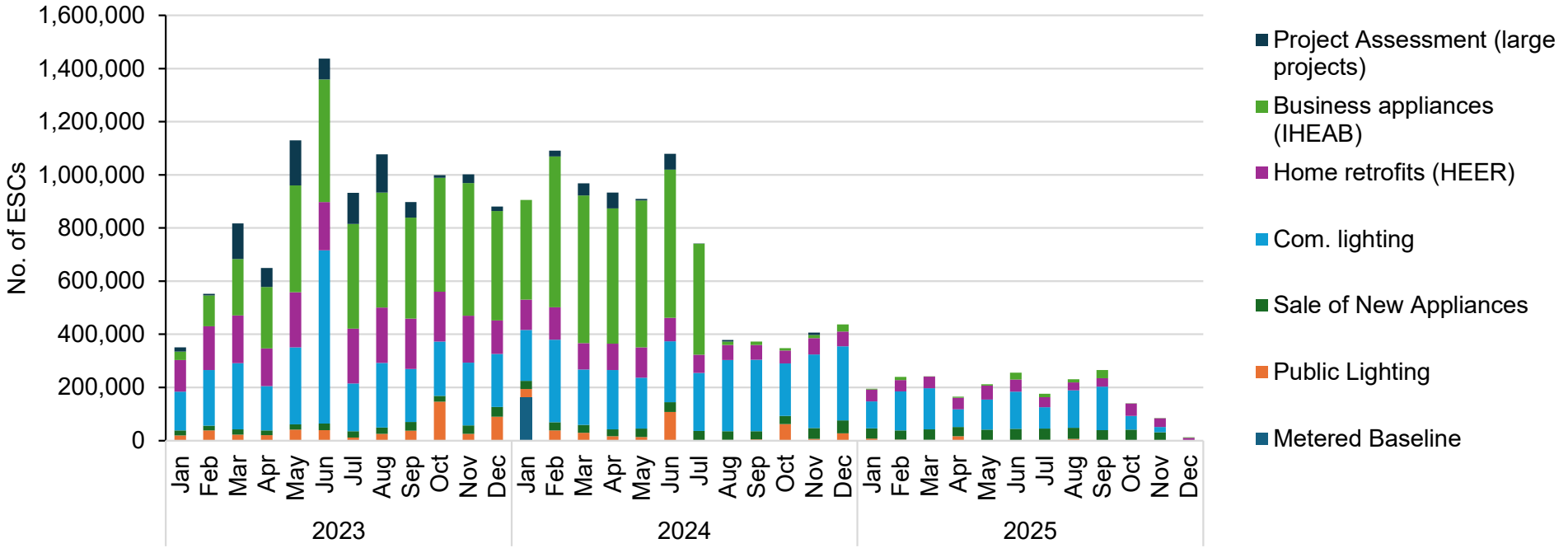
Energy savings delivered by the ESS - electricity vs gas



Reform strategy – 2. Expand scope of activities

- Over the past few years activity in the NSW ESS has been heavily dominated by lighting upgrades and upgrades of water heaters in business premises. However, adjustments were necessary which have effectively acted to phase out these activities (in part because efficient lighting had become standard practice). This has led to a dramatic slowing in installation activity under the scheme over 2025.
- This slowing in activity, if it continues, represents a potential threat to the ongoing viability of a range of energy saving businesses.
- This makes it especially pressing to make changes that will better support gas saving activities which will then spur greater activity in what is a relatively untapped market opportunity.
- Consideration also needs to be given to expanding the scope of activities to also cover solar and battery systems, and easing the administrative burden involved in creating certificates from activities that currently use the project impact assessment method.

Energy Saving Certificates by energy saving method by month of installation



Reform strategy – 3. Adjust the price cap to properly value emission and energy savings

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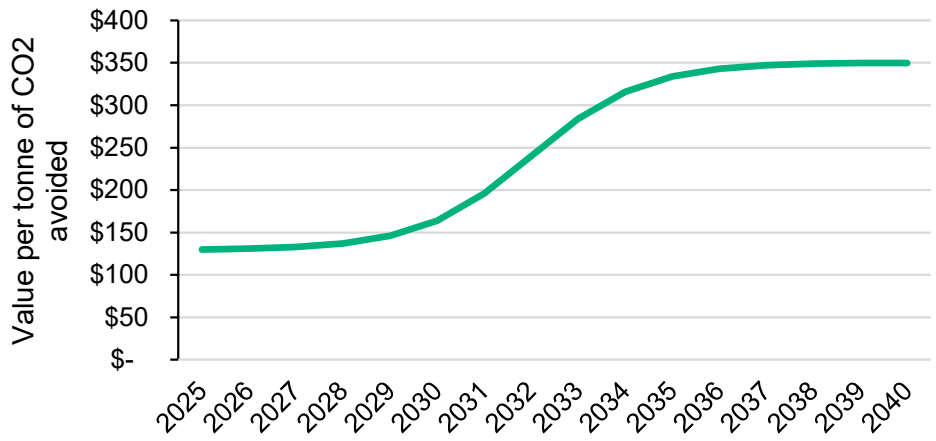
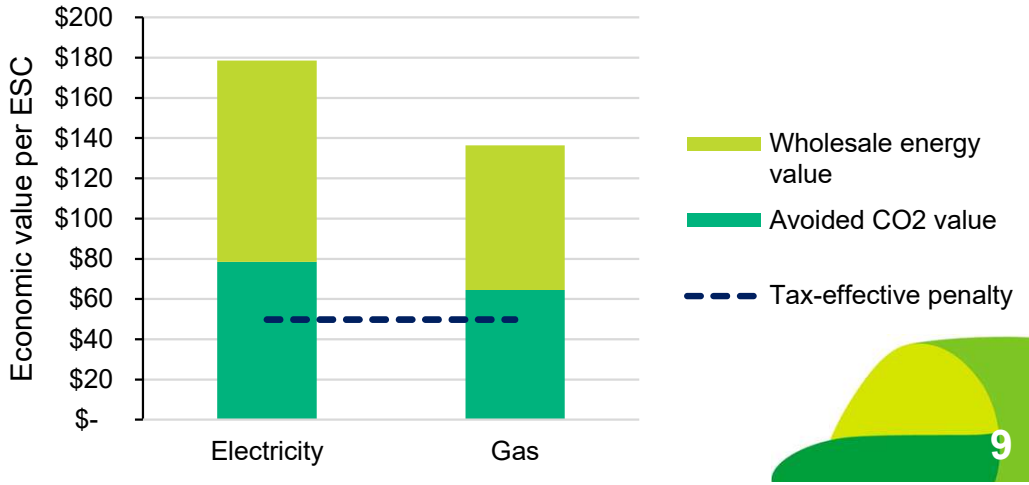
- The two main benefits delivered by energy saving activities are reductions in carbon emissions and reductions in the cost of energy supply. Estimates of the economic cost of CO2 emissions and energy supply have increased considerably since the Energy Savings Scheme was established, rising far faster than inflation.
- However, the penalty price for the ESS has only increased at the rate of general inflation and means that the maximum price liable entities are prepared to pay for Energy Saving Certificates falls well short of the economic value of energy saving activities.
- According to the NSW Government Treasury's guide to cost benefit analysis, measures that avoid a tonne of CO2 in the year 2025 should be assigned an economic value of $130, with this value then ascending over time to level out at around $350 per tonne for emissions delivered in the year 2040, as detailed in the chart below.

NSW Treasury guidance on economic value of avoided carbon emissions



- The market prices of wholesale energy from electricity and gas have risen significantly in the past ten years. This reflects the fact that both markets no longer operate with significant excess capacity.
- The main generators of electricity in NSW – black coal power plants – are close to retirement age and we will increasingly need new power plants to be built.
- Also the main gas fields supplying south-east Australia in Bass Strait and Moomba are reaching end of life and new fields and pipelines are likely to be required or potentially LNG import terminals. Both of these represent expensive sources of supply.
- Updated carbon and energy costs suggest the economic value delivered by activity producing an ESC is well above the current tax-effective penalty price (see chart below) and it would make sense for the penalty price to be significantly increased.

Economic value of an energy savings certificate by fuel vs the penalty price cap – 2025 values and settings



Examining 4 options for reform of ESS

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- To evaluate alternatives for how the ESS could be reformed we modelled four ways that the ESS might be structured going forward:
  - **Option 1 - Minimal change.** Involves little change to current settings, intended to provide a baseline of what might happen without substantive reform, although it also allows for new activities.
  - **Option 2 – More ESCs for gas and electrification.** The number of certificates awarded to activities that reduce gas usage is substantially increased, with no change to how electricity saving activities are treated. This scenario provides an administratively simple pathway for reforming the scheme. However, because it involves a significant increase in the number of certificates awarded to gas saving activities, it also requires a significant increase in the Scheme's target to avoid undermining its effectiveness in driving energy savings and emission reductions.
  - **Option 3 – ESCs equal CO2 saved.** Major shift in how certificates are awarded to not just gas but also electricity savings to align with their CO2 emission reductions. Essentially the scheme progressively moves to explicitly target emissions, with energy savings being a side benefit. This scenario is also noticeably more ambitious in terms of energy and emission savings because it keeps the target as currently legislated while reducing the number of certificates that both electricity and gas saving activities receive relative to current settings.
  - **Option 4 – Sub-target for gas and electrification.** Facilitates greater gas savings through a separate sub-target for gas Energy Saving Certificates. This sub-target is set at 6% of the overall ESS target in 2028 and is increased by 1% each year to reach 18% by 2040. Also the number of certificates awarded for gas savings is aligned with emission savings. Overall ESS Target is slightly accelerated.

- In our modelling across all the options we removed the current penalty price cap applying to certificates. As noted earlier the current price cap undervalues the economic benefit of emission savings and electricity and gas savings. Sensitivity analysis where the penalty price cap was maintained at its current settings led to supply of certificates falling short of the ESS Target under three of the four options examined, including the minimal change option.
- We also expanded the number of activities beyond what is currently available (for example solar PV is eligible)
- Option 1 doesn't respond to the fact that we need to put greater effort into saving gas in light of changes in this fuel's relative emissions intensity compared to electricity and serious constraints in gas supply. It also involves no change in the current certificate target.
- The other options do address the need to put greater priority on gas savings relative to electricity savings but do it in different ways. Option 2 involves a simple change where gas energy savings are awarded a higher and higher number of certificates over time to account for their higher relative emissions compared to electricity, but leaves the treatment of electricity saving activities unchanged. Option 3 changes how the scheme awards certificates to both gas and electricity to align with the tonnes of CO2 emissions avoided from the reduction in energy use. Option 4 rather than trying to adjust the number of certificates awarded to gas relative to electricity to account for changes in relative emissions intensity of the fuels, instead creates an extra target just for gas savings. While not modelled, this sub-target could also target electrification of other direct fossil fuel combustion.

Examining 4 options for reform of ESS

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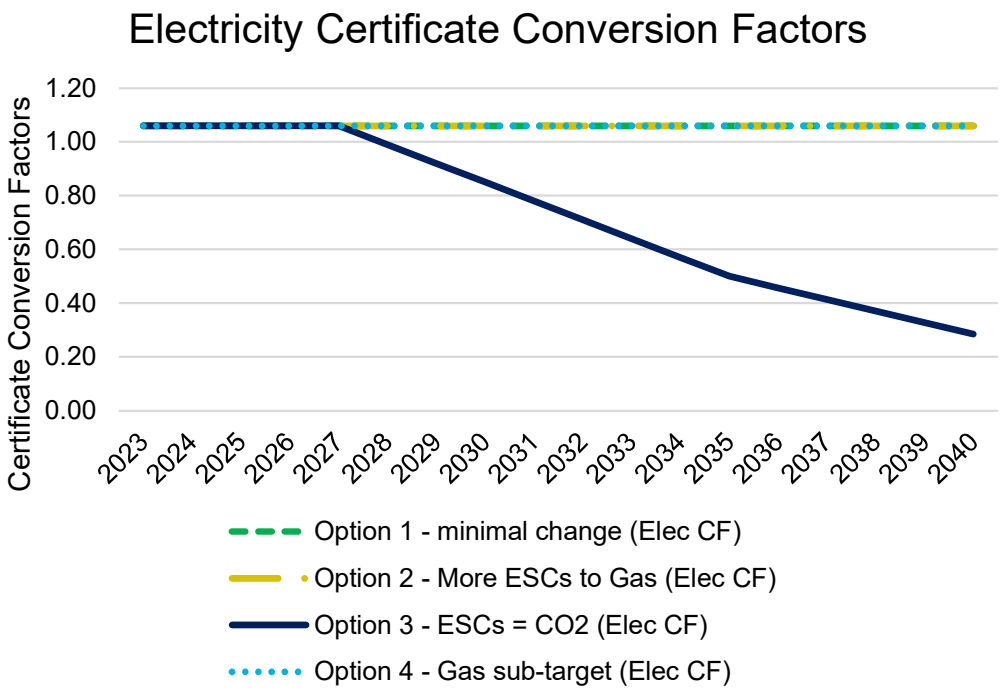
- The table below summarises the modelling results for each Energy Savings Scheme reform option.
- Both Option 2 and Option 4, deliver greater net economic benefit than sticking with the minimal reform involved in Option 1.
- Option 2 delivers 32% greater carbon emission savings than Option 1 and slightly greater overall economic benefits while imposing far less costs than Option 1.
- Option 4 involves slightly lower economic costs than Option 1 but delivers 38% greater emission reductions and almost $1.2 billion more economic benefits.
- While Option 2 delivers a greater net economic benefit than Option 4, it falls far short of Option 4 in terms of reducing electricity consumption.
- It is important to note that the options aimed at driving the substitution of gas with electricity, still end up delivering substantial net electricity savings, as well as gas savings.
- In addition to delivering emission reductions, an important objective for the ESS is to reduce the need for additional energy infrastructure. Of particular concern in relation to this objective is the need to replace the electricity currently provided by several NSW coal generators which are close to retirement age. Option 4 does far better on this policy issue.
- Option 3 meanwhile delivers the greatest benefits and emission reductions but also the highest costs. The increase in costs is due to the fact the scheme is more ambitious in the amount of energy savings it needs to achieve to deliver on the ESS target than the other options (because a given energy saving activity receives less certificates than under the other options, so more activities need to be undertaken to deliver enough certificates to meet the target). To deliver the higher amount of energy savings this option requires efforts to extend into areas where activities are expected to be more costly than the other options considered.

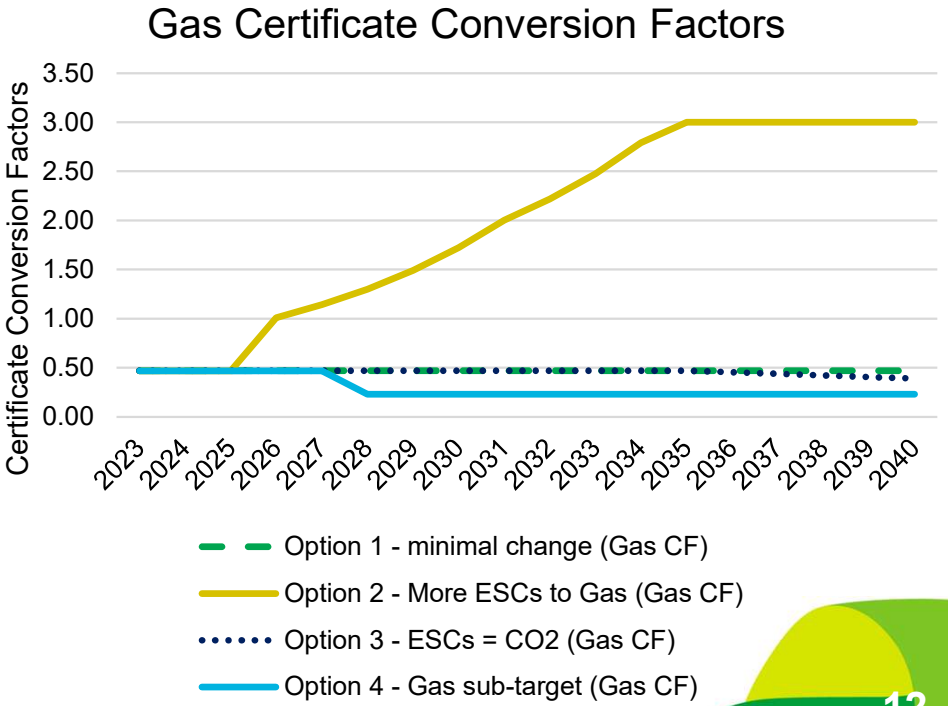
Summary of modelling results for each Energy Savings Scheme reform option

	Option 1	Option 2	Option 3	Option 4
Economic Costs ('000s)	$4,598	$2,403	$9,632	$4,381
Economic Benefit ('000s)	$7,335	$7,632	$10,148	$8,517
Net Economic Benefit ('000s)	**$2,738**	**$5,229**	**$517**	**$4,135**
Benefit to Cost Ratio	1.60	3.18	1.05	1.94
Cumul. 2040 Residential Installs	1,626,709	1,516,178	2,823,544	1,712,510
Cumul. 2040 Business Installs	76,402	73,467	93,237	87,202
Electricity Savings 2040 GWh/a	9,085	4,951	8,364	8,382
Gas Savings 2040 TJ/a	12,163	25,446	35,120	22,302
Emission Reductions 2040 ktpa	**1,560**	**2,066**	**2,982**	**2,155**

Certificate conversion factors

- The charts below illustrate the number of Energy Savings Certificates awarded per MWh of energy saved (the conversion factor) for electricity on the left and gas on the right under the four different reform options.
- The ESC conversation factor for electricity is the same across all options except 3. The dark blue line illustrates how under option 3 the number of certificates awarded to electricity savings falls over time in line with falls in the emissions intensity of electricity and CO2 abatement these energy savings deliver.
- In terms of the gas conversion factor, under Option 1 the gas conversion factor remains constant at the current level of 0.47 ESC per MWh.
- Under option 2, shown in the yellow line, the number of ESCs awarded to gas savings rises rapidly over time (while the electricity factor remains constant, in spite of the diminishing emissions benefit).
- In Option 3 the gas conversion factor starts steadily declining after 2035 towards aligning with its carbon emissions intensity by 2050.
- In option 4 the gas conversion factor drops down to 0.23 ESCs per MWh in line with the full life-cycle emissions intensity of gas.

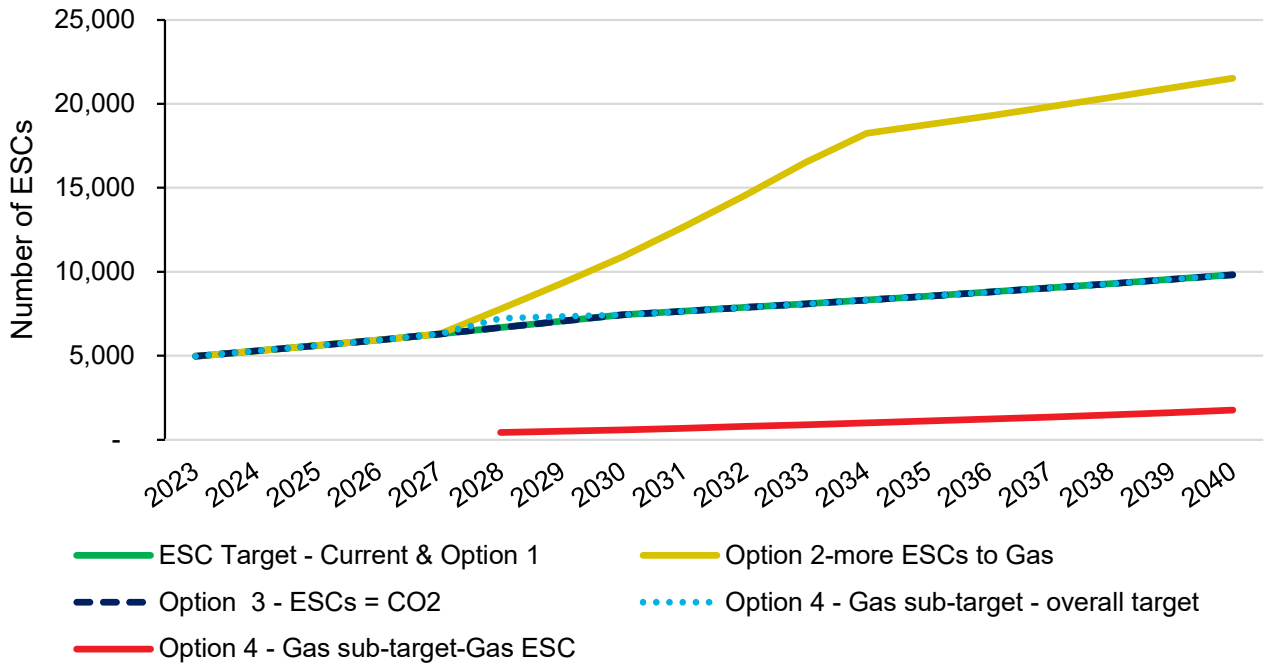




Level of target

- The chart below details the number of Energy Savings Certificates targeted under each modelled option.
- Option 2 (yellow line) involves a much higher number of ESCs, in line with the fact that gas energy saving activities are awarded significantly more ESCs per MWh of energy saved than under the other options.
- The other options require the same number of ESCs as the current legislated target (assuming electricity demand growth in line with AEMO's Step Change Scenario) but with a slight tweak for option 4 (light blue) where the final end target (13% of electricity sales) is brought forward by 2 years to 2028.
- Also, as noted previously, option 4 contains a sub-target just for ESCs derived from gas energy saving activities which is shown in the red line.
- Also worth noting is that even though option 3 (in dark blue) requires the same or similar number of ESCs as Option 1 and 4, because less ESCs are awarded to an activity per MWh of energy saved, this target is actually more ambitious in terms of energy savings and emissions.

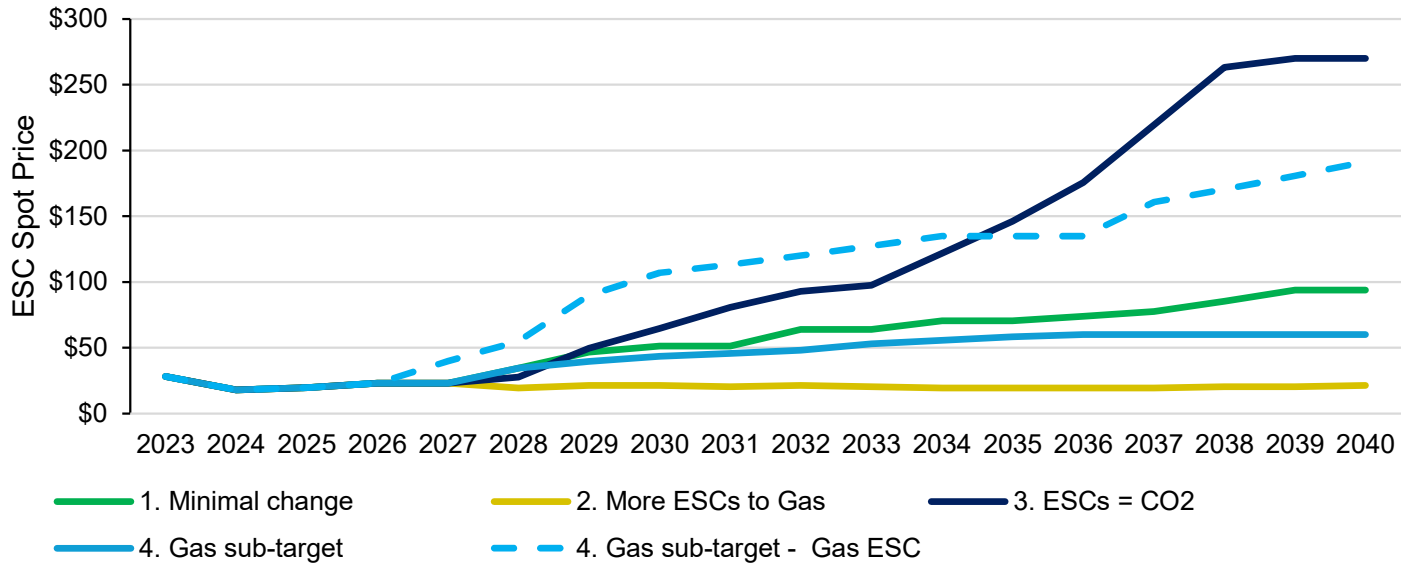
Number of ESCs targeted under each modelled option



Price of certificates

- The chart below details the projected price of Energy Savings Certificates under each scheme design option.
- The first thing to note is that under Option 4 where there is a sub-target for gas, a separate price emerges for ESCs derived from gas saving activities (shown in the dashed light blue line) which are priced at a premium to ESCs from electricity saving activities (the solid light blue line). While this creates an additional cost, it is confined to a small part of the overall scheme (6% of certificates in 2028 rising to a maximum of 18% by 2040).
- Option 3 has the highest priced ESCs because under this design energy saving activities receive a lower number of ESCs per MWh and so need a higher price per ESC to deliver the same level of incentive as under the other options.
- The counter opposite occurs under Option 2, where the ESC price is lower because gas saving activities receive more ESCs per MWh and so need less value per ESC to make an activity viable. Although the higher scheme target mitigates some of the deflationary effect on ESC prices from increasing the Gas Conversion Factor.
- Also while the minimal change option may intuitively seem an easy path to take, it is expected to experience a rise in ESC prices greater than option 2 and option 4.
- These results suggest that outside of option 2 the current penalty price cap will need to be lifted, otherwise there will be insufficient supply of ESCs to meet targets.
- As noted earlier, lifting the price cap makes economic sense given the economic benefits of energy savings substantially exceed the current price cap.

Price per ESC under each scheme design option



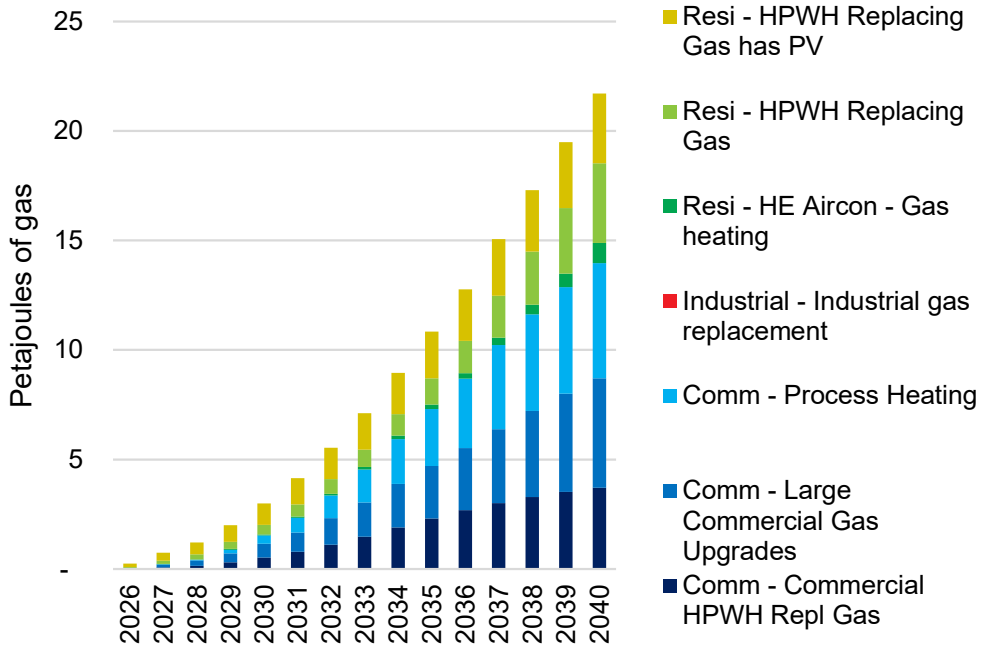
Which path forward?

- This modelling indicates that reforms under Option 2 and Option 4 would provide greater net economic benefits to the NSW community that continuing with the current framework that fails to place a stronger priority on gas energy savings.
- These positive modelled outcomes are, however, based on an assumption that the scheme will make adjustments to activities that will expand ESC supply and the penalty price cap will be adjusted in line with the economic value of energy savings.
- While the modelling indicates that Option 2 delivers a higher net benefit than Option 4, it is based on an assumption that current wholesale electricity prices will not be adversely affected into the future. This would include managing a timely replacement and retirement of NSW coal power stations with cost-efficient new supply.
- The NSW Government has indicated in its Energy Security Safeguard policy reform consultation paper that is concerned that reform in line with Option 2 would lead to excessive crowding out of electricity savings activities that could reduce the scheme's effectiveness in containing the amount of new power capacity needed in the future.
- This concern is understandable given the significant amount of coal generating capacity due for closure over the next decade.
- Our results indicate that option 2 delivers 40% less annual electricity savings than option 4. This may mean Option 4 is a preferable path forward for the government that balances the need to put greater effort into reducing gas usage while still ensuring the scheme continues to deliver significant energy savings in electricity.
- We would note that the economic net benefit calculations we've prepared are intended to be an indicative guide, rather than a precise and definitive answer. Plausible changes in circumstances that are different to our assumptions might mean Option 4 provides a better net economic benefit than Option 2. Nonetheless we are confident that they both will deliver a better result than option 1.
- In light of the Government's expressed preference for reform along the lines of Option 4, the next few pages will outline the results for this scheme design in more detail.

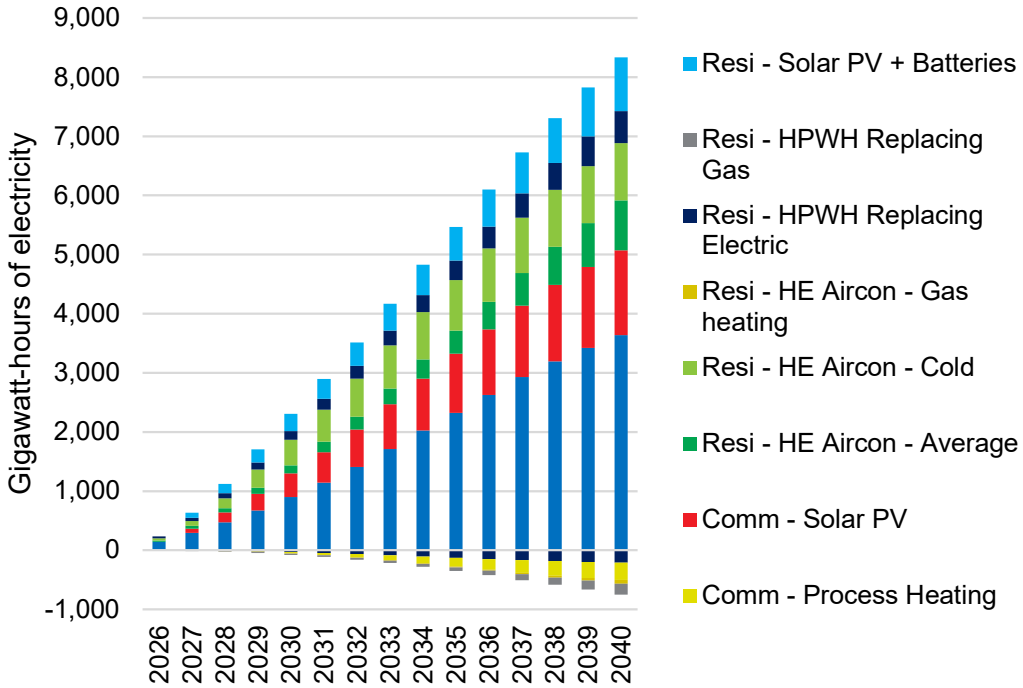
Detailed Results – Option 4
Drivers of energy savings

- While the roll-out of energy savings activities under the ESS has slowed considerably in the last few months, reforms outlined in this report could re-invigorate the scheme to support the widescale roll out of a range of energy efficiency technologies.
- In the chart below we provide a further break-down of the energy upgrade activities that we estimate could deliver the 22 petajoules of gas savings by the year 2040 under Option 4. These include heat-pump water heaters (HPWH) replacing gas, high efficiency (HE) air conditioners replacing gas for heating, and substitution of gas with electricity for applications like process heating in commercial and industrial manufacturing applications.

Annual gas savings by activity



Annual electricity savings by activity

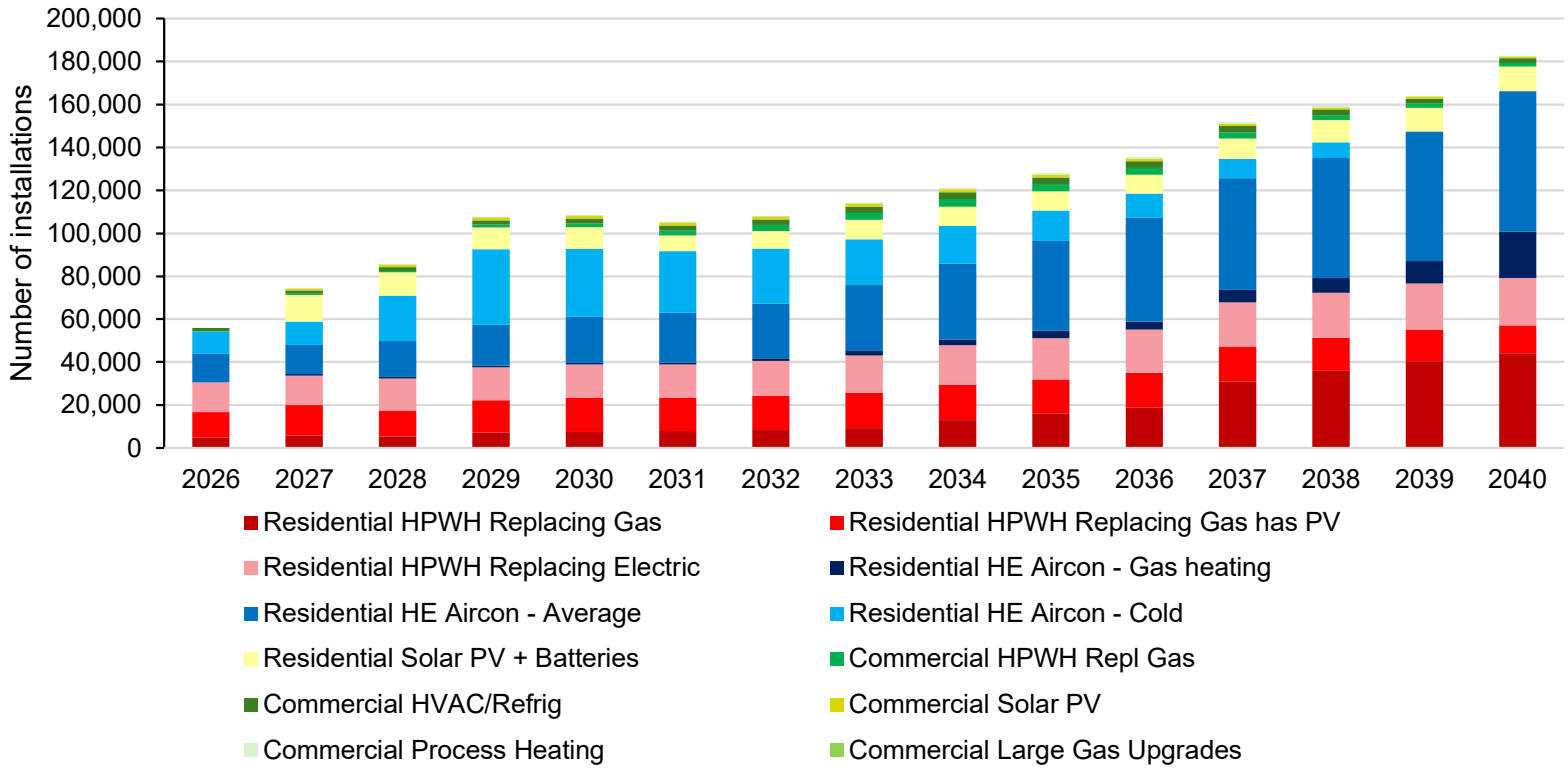


- The chart above details the activities projected to deliver electrical energy savings under Option 4, although with the negative values showing where electricity consumption would increase under gas replacement activities.
- The greatest electricity savings come from improvements to commercial building heating, ventilation and cooling (HVAC) systems. This is followed by commercial solar PV and then high energy efficiency air conditioners and heat pumps replacing inefficient electric resistance water heaters.

Detailed Results – Option 4
Drivers of energy savings

- The chart below illustrates the number of physical installations we project into the future if the reforms envisaged under option 4 were implemented.
- Please note this envisages that several new energy saving activities would be added to the scheme, in particular replacing gas heating with high efficiency air conditioners.
- In terms of number of installs (rather than energy saved) this is dominated by projected widespread adoption across NSW residential households of high efficiency air conditioners for heating and cooling (shown in blue sections) and heat pumps for water heating (red sections).

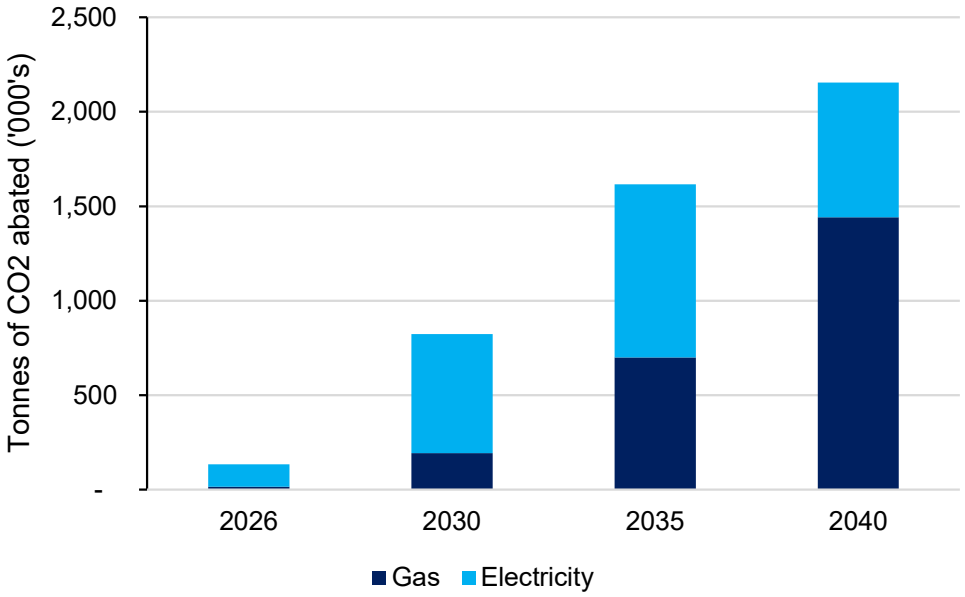
Projected number of installation upgrades under enhanced ESS by activity type



Detailed Results – Option 4
Emission savings

- The chart to the right details the emission reductions we estimate will be delivered over time from Option 4.
- Historically the ESS has delivered most of its energy and emission savings via improvements to electrical energy efficiency. Up to 2030 we expect that electrical energy efficiency measures under the ESS will continue to deliver the majority of emission savings.
- However, due to expected progressive replacement of fossil fuel generators with wind and solar power plants over the next decade, the amount of carbon abatement delivered from saving a megawatt-hour of electricity will significantly diminish over the next decade.
- While electrical energy efficiency will continue to deliver economic benefits to community, to achieve ongoing emission savings the ESS will need to play a greater role in driving reductions in the consumption of fossil fuel gas. This is expected to ultimately become the predominant source of emissions reductions flowing from the scheme.

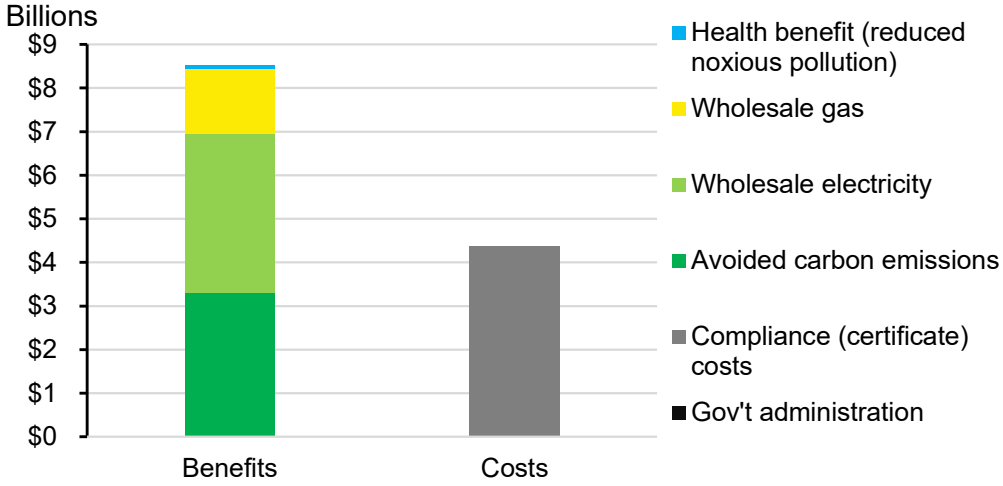
Annual emission reductions by energy source



Detailed Results – Option 4
Economic net benefit

- An enhanced Energy Savings Scheme in line with Option 4 is estimated to deliver a net benefit over the period of 2026 to 2040 of $4.1 billion in net present value terms (5% discount rate). It is estimated to deliver $1.94 in benefit for every $1 in cost.
- The balance of costs and benefits are detailed in the chart to the right.
- Avoided carbon emissions were estimated using guidance from NSW Treasury on the value per tonne of CO2 that should be used for NSW Government cost-benefit analyses.
- The value of avoided wholesale electricity purchases was set at $100 per MWh which was informed by recent ASX Energy traded values for a NSW baseload electricity contract. Given the imminent closure of several major coal generators and the need for new power plant capacity it was considered appropriate to value electricity savings based on overall costs of wholesale electricity supply embodied within these contract prices, rather than an estimate of the short-run marginal costs.
- Wholesale gas was priced at $20 per gigajoule, which while higher than recent wholesale market prices, reflects that south-eastern supplies are forecast to be insufficient to meet demand and there will probably be a need for a combination of new gas field development and either additional pipeline infrastructure from Queensland or LNG imports. Therefore, gas should be priced at a premium to reflect the large costs involved in adding new supply capacity.
- The costs associated with the ESS are dominated by compliance costs linked to what our modelling estimates is the likely price of NSW Energy Savings Certificates and the amount of certificates required under the target

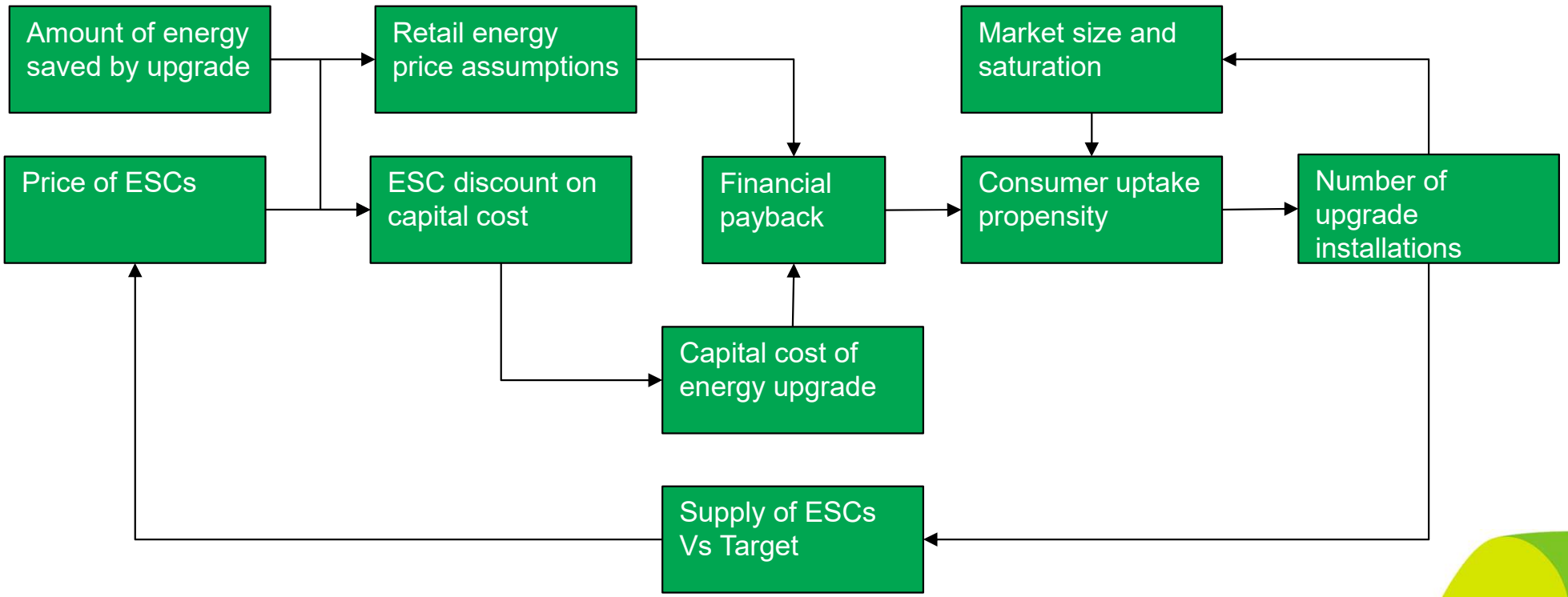
Cost-benefit evaluation of enhanced ESS 2026 - 2040



Appendix – About the model

- The analysis in this report employs Green Energy Markets' Energy Appliance and Equipment Payback and Uptake Model. This is an extension of the model originally developed for projecting solar and battery uptake that has been used for preparing projections for the Australian Energy Market Operator and the Clean Energy Regulator.
- The model estimates payback for a wide range of energy saving upgrade investments.
- The level of payback, mediated by existing levels of market saturation for that upgrade, then determines the proportion of the applicable market that will adopt that upgrade in a given year based on a consumer uptake propensity demand curve.
- The model will keep increasing the ESC price until enough upgrades are installed to create enough ESCs to satisfy the required target plus a surplus equal to the size of the subsequent year's target, so as to ensure sufficient market liquidity.

Components of Green Energy Markets' Energy Appliance and Equipment Payback and Uptake Model.



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