VAGO
Victorian Auditor-General's Office

Delivering the Solar Homes Program

June 2021

Independent assurance report to Parliament
2020–21:20

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The Hon Nazih Elasmar MLC
President
Legislative Council
Parliament House
Melbourne

The Hon Colin Brooks MP
Speaker
Legislative Assembly
Parliament House
Melbourne

Dear Presiding Officers

Under the provisions of the *Audit Act 1994*, I transmit my report *Delivering the Solar Homes Program*.

Yours faithfully

Andrew Greaves
Auditor-General

24 June 2021

The Victorian Auditor-General's Office acknowledges Australian Aboriginal peoples as the traditional custodians of the land throughout Victoria. We pay our respect to all Aboriginal communities, their continuing culture and to Elders past, present and emerging.

Contents

Audit snapshot

Is the Solar Homes Program enabling Victorian households to control their power bills and reduce carbon emissions?

Why this audit is important

In August 2018, the government established the Solar Homes Program (the program) to help Victorians control their electricity bills and lower carbon emissions. To date, over 100 000 households have received program rebates.

The potentially significant environmental and economic benefits, and the financial cost of this $1.3 billion program, warrant detailed independent examination.

Who we examined

The program delivery agency is currently Solar Victoria (Solar Vic), a portfolio entity within Department of Environment, Land, Water and Planning (DELWP).

We also engaged with the Department of Premier and Cabinet and Sustainability Victoria (SusVic) to understand their roles in planning and implementing year one of the program.

What we examined

- Whether the program is enabling Victorians to access solar panels, batteries and hot water systems.
- Whether program delivery is facilitating the achievement of intended outcomes.

What we concluded

Solar Vic is not yet able to report to what extent it has reduced consumers' power bills and carbon emissions through this $1.3 billion investment.

This is because, despite the program starting in August 2018, Solar Vic only finalised its evaluation methodologies in April 2021.

During 2019, the program was oversubscribed, leading to pauses and disruptions to the solar sector.

Known limitations of the grid to accept power from solar panels also limits benefits for program customers.

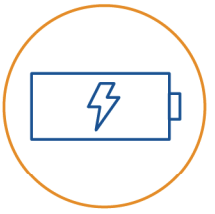
Solar Vic has made progress in addressing these program risks, better staging rebate releases and increasing its engagement with industry.

Solar Homes Program

Government announcement on 19 August 2018
–
SusVic program delivery from 19 August 2018 to 30 June 2019
–
Solar Vic (DELWP) program delivery from 1 July 2019

$1.3b
10-year Solar Homes Program budget

700k
Solar PV panel rebates



18.5k
Solar battery rebates

60k
Solar hot-water system rebates

Note: PV = photovoltaic.

What we found and recommend

We consulted with the Department of Environment, Land, Water and Planning, including Solar Victoria, as well as Sustainability Victoria and the Department of Premier and Cabinet and considered their views when reaching our conclusions. The entities' full responses are in Appendix A.

Program planning

Neither the Department of Premier and Cabinet (DPC) nor the Department of Environment, Land, Water and Planning (DELWP) developed a full business case for the Solar Homes Program (the program). This meant that government lacked sound and comprehensive information to consider the merits of the program.

Program planning was deficient in as much as it failed to fully appreciate and effectively mitigate obvious risks of excess demand, market reliance and grid capacity.

Despite its size and complexity, only limited implementation planning had been undertaken when the program started in August 2018.

Program design

DPC had from April to July 2018 to design the $1.3 billion 10-year program for commencement by August 2018. DPC advised that this timeframe did not allow it to develop a full business case.

In its project assumptions and implications document, DPC acknowledged that limited stakeholder consultation had occurred, and more time would have allowed for a better product, lower delivery risk and potentially greater benefits.

DPC's Solar Homes Program Design and Options Report (Design and Options Report) was insufficient to lay out and make the case for government intervention. It was not a business case and did not explain why the best solution to the identified need of reducing Victorians' energy costs is rebated solar photovoltaic (PV) panels, batteries, and solar hot-water (SHW) systems.

Options analysis

A business case includes developing and analysing a range of project options to address the identified problem.

Other than the program—rebated solar energy systems—DPC did not identify any other option to address the identified need to reduce Victorians' electricity bills and carbon emissions. DPC also did not consider the 'do nothing' option as a benchmark for assessing the program's value proposition despite existing growing demand for solar PV panels and the potential adverse impact of accelerated solar PV panel uptake on the state's electricity grid.

DELWP's 'business cases' for the second and third year of the program also did not sufficiently articulate the case for change and possible response options. These were missed opportunities to develop a full business case and provide a sound basis for continued government intervention and ongoing investment.

Identifying risks

DPC's Design and Options Report failed to fully consider the risks of—and mitigating actions against—oversubscription (demand exceeding planned number of available rebates), market reliance and the impact of increased solar generation on the electricity grid.

Oversubscription and market reliance

DPC failed to identify the risk of oversubscription other than as a potential cause of the 'manageable risk' of cost overruns. Sustainability Victoria's (SusVic) mitigation actions—to monitor uptake and develop a communications strategy—did not help it to effectively manage the significant demand from Victorians who quickly responded to the rebate offer.

The government's response to substantially increase the number of offered rebates impacted the program's budget. In its 2019–20 business case, DELWP acknowledged that:

- it would be difficult to manage future demand for solar PV panel rebates within the planned program budget without further disrupting the state's solar market
- retailers and installers may be setting prices against the benchmark price established by the rebates, as indicated by the stabilisation of the price, contrary to expectations that it would decline.

Despite these concerns around potential industry reliance on the program, to date Solar Victoria (Solar Vic) has not provided advice to government on potential exit strategies and how to mitigate any impact on the solar sector.

Grid impact

The state's electricity grid was not designed to accommodate high levels of distributed energy resources (DER) such as solar PV panels. Energy exported from solar PV panels results in voltage rises, which can lead to damage and deterioration of the network.

DELWP noted in its 2019–20 business case that these issues needed to be addressed early to maintain public confidence in the program and allow participants to maximise the value of their solar energy systems.

DPC's Design and Options Report indicated that 'the total unmitigated impact on the grid would cost consumers approximately $320 million over eight years'. It assessed the risk of grid instability as HIGH and identified the following mitigating actions:

- requiring smart inverters for solar PV panel installations—at consumers' cost—to help manage network voltage and frequency levels
- $10 million Grid of the Future funding for DELWP to facilitate planning for the future integration of DER across the state.

These mitigation actions could not address the risks presented by the program on grid stability in the short term, and instead represent only a small part of a much

larger and longer program of work to be undertaken by another business unit within DELWP.

The impact of this issue for program participants was not adequately explored in DPC's Design and Options Report nor in DELWP's subsequent business cases. Solar Vic is privy to confidential industry data, which shows that despite changes to inverter standards, some distributed network service providers (DNSP) are increasingly constraining the ability of new connections from either fully or partially exporting to the grid. Solar Vic expects this issue to persist as grid issues continue and more Victorians install solar PV panels.

The impact, however, is not limited to new customers. When network voltage is not optimal, program participants, in general, are limited in their ability to both self-consume and export the electricity generated by their solar PV panels. This is because under current Australian standards, inverters are forced to reduce output when voltages are high, reducing both export and self-consumption.

Implementation planning

Implementation planning helps effective program delivery. It guides the management of deliverables in light of identified risks and available resources, and tracks program compliance against requirements, timelines and intended outcomes.

In October 2018, the Minister for Energy, Environment and Climate Change (from December 2018 also Minister for Solar Homes) (the minister) directed the establishment of Solar Vic as a business unit within SusVic. In December 2018, the minister announced Solar Vic's transition to DELWP—as a portfolio entity—on 1 July 2019 to deliver program Phase 2.

Program delivery is divided into two phases, each managed by a different entity. SusVic delivered Phase 1 from 19 August 2018 to 30 June 2019. Solar Vic took over responsibility for the delivery of program Phase 2 from 1 July 2019.

Phase 1

Given the large and complex nature of the program, an implementation plan should have been in place when it started. However, other than a draft timeline summary developed by DPC, no implementation plan guided SusVic's program delivery when it launched on 19 August 2018. The minister directed SusVic to draft an implementation plan for their consideration by 24 October 2018.

SusVic advised the minister's office on 24 October 2018 that it had drafted an implementation plan and would consult DELWP before finalising it. This draft plan included limited information on scope, timeframes for key activities, budgets and resourcing. Moreover, it did not discuss quality management. SusVic advised that it used this draft to guide project delivery from 24 October 2018.

SusVic finalised its implementation plan in December 2018 midway through the delivery of Phase 1. While this plan covered required components such as risk management and priority activities with timelines, it did not provide for monitoring and evaluating program performance. It also did not outline program controls. However, SusVic benefited from its dedicated Board subcommittee, internal project control board and its project management office for program oversight.

Phase 2

SusVic began work on an implementation plan for Phase 2 of the program in December 2018, with the intention of having it completed by 31 January 2019. However, following announcement of the program's transfer, SusVic agreed with

DELWP to focus on delivering Phase 1 and assisting with the smooth transition of the program and business unit to DELWP.

DELWP undertook detailed transition planning to incorporate the Solar Vic business unit by 1 July 2019, oversighted by DELWP's project control board (PCB). DELWP's transition planning documents assisted the orderly transfer of the program and Solar Vic to DELWP but did not detail Phase 2 program components including deliverables, timelines, resourcing requirements, accountable persons and risks and mitigation. This limits transparency about how Solar Vic planned to deliver Phase 2 and accountability for program achievement.

However, the program benefits from DELWP's oversight of Solar Vic. Central to these arrangements are monthly PCB meetings chaired by the DELWP Secretary and the program's inclusion in DELWP's strategic risk register and internal audit program.

Recommendations about program planning

We recommend that:		Response
Department of Environment, Land, Water and Planning (Solar Victoria)	1. develops an updated business case, utilising guidance in the Department of Treasury and Finance's *Investment Lifecycle and High Value High Risk Guidelines: Stage 1—Business Case* and, in so doing, provides full and comprehensive advice to government on a reasonable array of options, including 'doing nothing' as well as exit strategy options and analysis of the continuing merits of government intervention (see Section 2.1).	**Accepted**
	2. includes information in its public-facing communications about distributed network service providers' export constraints so prospective program applicants are made fully aware of any limits on their ability to earn revenue from their unused solar-generated electricity and self-consume electricity generated by their solar photovoltaic panels when grid conditions are not optimal (see Sections 2.2 and 3.3).	**Accepted**

Program delivery

Limited planning had negative consequences for program delivery. Poor demand management led to pauses in rebate rollout, which caused workflow issues for the solar industry. The program also began with limited controls to manage safety and quality risks, fraud and grid limitations.

While Solar Vic has made substantial progress in addressing these issues, work remains, including to improve consumer protections. Solar Vic has also significantly increased engagement with industry and relevant government agencies and is better staging rebate releases and using insights from its audits to improve safety within the sector.

Managing demand for solar PV panels

In early January 2019, with five more months to the end of the financial year, all 24 000 rebates for 2018–19 were fully subscribed. To continue the program, the government approved an additional 8 000 solar PV panel rebates, but these did not

meet continued high demand and did not stop the program from temporarily closing from 12 April until 30 June 2019.

Neither DPC's nor SusVic's planning documents up to this point envisaged the risk of program closure as a consequence of oversubscription. Lack of industry consultation in developing the program was a likely contributing factor to this issue. When the program reopened in July 2019, Solar Vic offered monthly allocations in an effort to manage demand. However, pent-up demand from when the program was closed meant that rebate allocations were very quickly taken up—within between 18 minutes and 7.5 days during July to December 2019.

DELWP acknowledges that the shortage of rebates compared to demand resulted in significant customer dissatisfaction and industry backlash. Industry members complained that the boom-and-bust program cycle meant prolonged periods of economic uncertainty for the solar industry.

The minister and treasurer consulted with industry representatives in August 2019 and agreed to further increase rebate allocations. In addition to increased rebates, Solar Vic began offering fortnightly rebate allocations to better manage demand and provide smoother purchasing patterns for industry.

Demand for solar hot-water systems

Consumer demand for SHW systems has been low since the program started, with approved applications accounting for less than 8 per cent of total available rebates. Solar Vic's 2020 review found that reasons for the low uptake include program restrictions of one solar rebate per household, as well as Victorians' general lack of knowledge about SHW systems as opposed to electric or gas variants.

Solar Vic advised that it is developing a work program aimed at increasing the uptake of SHW rebates.

Managing demand for batteries

The initial low demand for battery rebates was largely due to the program's postcode restrictions. The postcodes first included in the program had a shallow pool of eligible applicants as many households had already obtained a solar PV rebate.

On Solar Vic's advice, the minister gradually removed postcode restrictions, and by July 2020, all restrictions were lifted. This significantly increased the demand for battery rebates. Solar Vic continues to closely monitor demand for battery rebates and offers monthly or fortnightly rebate allocations to match demand.

Safety and quality

The importance of setting up appropriate and effective safety and quality controls prior to program commencement was highlighted in the findings of the 2014 *Report of the Royal Commission into the Home Insulation Program*. DPC recognised this in the Design and Options Report.

While SusVic mandated installer accreditation and the use of approved products from August 2018, most of the safety and quality controls identified in Solar Vic's September 2020 Safety and Quality Assurance Framework were not in place at

program start. Solar Vic has since worked to require more safety and quality components for the program.

Consultation with government and industry stakeholders

To augment DPC's confidential and limited consultations during program planning, SusVic started consulting more broadly with government and industry stakeholders in October 2018. Solar Vic is actively building on this consultative work.

Consequently, Solar Vic's understanding of safety and quality issues has improved. It is working collaboratively with industry and regulatory agencies to better manage identified risks.

Safety audit program

To date, there has been no report of program installations causing fire or other harm. However, as at 30 August 2020, Solar Vic's safety audits found that around a third (33.4 per cent) of installations were not 'installed to standard' and were assessed as either 'unsafe' (2.2 per cent) or 'needs rectification' (31.2 per cent). Solar Vic acknowledges that the high number of substandard installations is unacceptable and is targeting a compliance rate of between 87.5 to 92.5 per cent.

Our review of 4 591 audit results completed as at February 2021 shows a slightly higher rate of substandard installations (36.85 per cent), with 2.57 per cent assessed as 'unsafe' and 34.28 per cent as 'needs rectification'.

Certificates of electrical safety

Solar Vic's audit program brings to light safety and quality issues with installations that have previously passed inspection by, and received certificates of electrical safety (CES) from, Energy Safe Victoria's (ESV) licensed electrical inspectors (LEI).

Based in part on the results of Solar Vic's audit program, and ESV's plan for stronger compliance and enforcement, ESV has started, but is yet to complete, an independent and comprehensive review of its LEIs and electrical inspection program.

Suspensions and cancellations

Solar Vic holds retailers responsible for the quality of installations and, during the audit, was monitoring six retailers for poor installation performance. Solar Vic holds retailers to account for systemic issues to ensure retailers are more discerning about who they choose to complete installations for their customers. Solar Vic suspended or cancelled 11 retailers from the program in 2019–20.

Key limitations of the safety audit program

Discrepancy in assessments: from a review of 31 randomly selected audit reports completed from 1 July 2019, we found three reports (10 per cent) where there was a conflict between the overall audit rating and individual checklist assessments. These reports obtained a better rating than what Solar Vic's safety audit program procedures require.

Following our review, Solar Vic checked its audit reports and advised that it found 441 audit reports—completed between September 2018 to December 2019—with similar discrepancies. This translates to 9.6 per cent of 4 591 audit reports (completed by February 2021). Solar Vic explained that its audit process before August 2019 allowed auditors to determine an overall rating independent of individual checklist assessments. Solar Vic further explained that five reports completed between August

and December 2019 had similar discrepancies, and this was due to providers adjusting to the new process.

Audit rating categories: Solar Vic has revised its audit rating categories twice since June 2019. These changes have meant that previously assessed installations, if re-assessed using the new categories, could receive a less severe assessment. For example, they could move from 'improvement identified' to 'adequate'. This means that improvements in Solar Vic's audit results—from audit reports completed from 2018–19 to subsequent years—may at least be partly attributable to the changed audit categories.

Insufficient controls

Gaps in Solar Vic's assurance controls mean that it is unable to fully oversight implementation and ensure compliance with program rules and procedures. The November 2020 Solar Homes program: Assurance Framework Assessment (the November 2020 internal audit report)—an internal audit report commissioned by DELWP for Solar Vic—assessed Solar Vic's assurance processes as 'inconsistent' and 'evolving' with significant opportunity for improvement.

Solar Vic accepts this finding and acknowledges that its assurance controls 'remain in relative infancy'. The report identified operational risks, such as those relating to customer eligibility and retailers' responsibilities, that require new or additional controls to ensure compliance with program policies and procedures.

Solar Vic is working to address the findings of this internal audit report and has developed an assurance framework map that aims to:

- document all operational risks and the controls to address them
- allow control gaps to be continually identified and addressed.

Solar Vic advised that it completed addressing the recommendations of the November 2020 internal audit report by 31 March 2021. It has since implemented a further iteration of its assurance map which includes additional controls.

Pre-approval for grid connection

Solar Vic's October 2020 PCB meeting papers show that some solar PV panel owners find out for the first time that they are unable to export to the grid only after they have paid for and installed their solar PV panels.

This is a significant issue as it means that program customers may be making purchases without having all the information they need to make informed decisions. While Solar Vic advised it requires retailers to obtain DNSP pre-approval and include this information in their quotes to consumers, our review of Solar Vic's application process shows that it has no controls to ensure retailers comply with this requirement.

Consumer protection

Solar Vic's current consumer regulatory framework does not sufficiently cover solar energy system purchases in terms of:

- unsolicited sales activities, such as door-to-door pitches and telemarketing
- requiring a uniform or proforma template for retailers' quotes

- providing for independent external dispute resolution
- protecting consumers against retailers that cease operations during the five-year warranty period.

Solar Vic's Industry and Consumer Reference Group (ICRG) supports efforts to improve consumer protections in the industry and, as a first step, Solar Vic is drafting recommendations to ban door-to-door sales.

Recommendations about program delivery

We recommend that:		Response
Department of Environment, Land, Water and Planning (Solar Victoria)	3. resolves gaps in its assurance controls to enable it to ensure compliance with program rules and procedures. This should include, but not be limited to, the requirement for retailers to obtain solar photovoltaic panel pre-approval for grid connection, eligibility requirements, and the gaps identified in the November 2020 internal audit report on the Solar Homes Program's assurance framework (see Section 3.3).	**Accepted**
	4. continues to work with relevant regulators to ensure that identified gaps in consumer protection for solar energy products are addressed (see Section 3.3).	**Accepted**

Evaluation and reporting

Solar Vic is not yet able to report to what extent it has reduced consumers' power bills and carbon emissions through this $1.3 billion investment.

Solar Vic is meeting targets for the delivery of solar PV panel rebates and the timeliness of application processing.

Program evaluation

Neither DPC nor SusVic developed a monitoring and evaluation framework, and Solar Vic did not complete one until December 2020. Solar Vic's monitoring, evaluation and learning (MEL) framework sets out its evaluation approach at a high level.

On 28 April 2021, Solar Vic finalised its evaluation plans, including methodologies for assessing program objectives relative to job creation, consumer savings, carbon reduction and renewable energy generation.

Jobs creation

In April 2021, Solar Vic estimated that the program created 4 711 jobs. The method it used is consistent with the standard techniques used to estimate renewable energy employment internationally and by the Australian Bureau of Statistics.

Consumer bill savings

In March 2021, Solar Vic undertook a pilot study of 129 program participants to determine consumer bill savings. The analysis indicates an average annual saving of $1 073 in electricity bills. However, Solar Vic did not use actual consumer power bills to calculate the savings. Rather, it used approximated reference retail electricity prices

and estimated solar generation, assuming 95 per cent of solar panels are north-facing, among other assumptions.

The study cautions against extrapolating this result outside of the sample size as more work is required on its methodology to better approximate savings.

Carbon emission reduction

In April 2021, Solar Vic finalised its methodology for measuring carbon emission reduction. It advised that moving forward it will report separately on reduction in carbon emissions per year from the National Electricity Market and in Victoria.

Renewable energy generation

DELWP's *Budget Paper No 3* (BP3) reporting indicates that it met its renewable energy generation target in 2019–20. The program's outputs contribute to DELWP's achievement of this target.

Budget Paper No. 3 Service Delivery provides an overview of the goods and services funded by the government. It also details how these are delivered by departments, and how they support the government's strategic objectives.

Reporting on performance

To date, Solar Vic's performance reporting has focused primarily on outputs including total rebates paid, number of applications approved, and systems installed.

Solar Vic exceeded its initially targeted number of solar PV panel approvals in both 2018–19 and 2019–20. However, the total approved SHW system rebates for both 2018–19 and 2019–20, and approved battery rebates for 2019–20, fell short of the program's rebate allocations.

Solar Vic achieved five of its nine BP3 measures. In 2019–20, Solar Vic processed rebate applications within two days, well within the identified target of five weeks. It also took Solar Vic less than two weeks or half the time to process eligibility requirements than the targeted four weeks.

Recommendation about program evaluation and reporting

We recommend that:		Response
Department of Environment, Land, Water and Planning (Solar Victoria)	5. reviews and confirms the soundness of its recently determined evaluation methodologies to provide relevant reporting on the program's intended outcomes (see Sections 4.1 and 4.2).	**Accepted**

1. Audit context

Households are increasingly moving to renewable energy technologies. Solar industry products, particularly solar PV panels, are one of the most popular renewable energy sources.

According to the Australian Government's Clean Energy Regulator, there were over 509 000 installed solar PV panels in Victoria as at December 2020.

The Victorian Government's Solar Homes Program provides incentives for households to switch to solar energy through rebated solar PV panels, batteries and hot-water systems.

This chapter provides essential background information about:

- Solar energy and solar power
- Policy context
- Solar Homes Program
- Roles and responsibilities

1.1 Solar energy and solar power

Renewable energy, often referred to as clean energy, comes from natural sources that are easily replenished or do not deplete. Examples include energy from solar, wind and hydroelectric sources.

How solar energy is produced

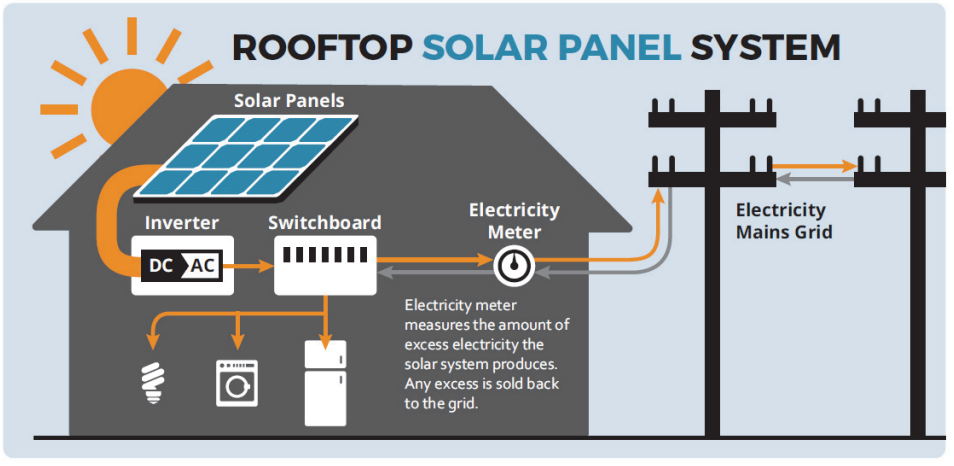
There are two main types of solar power technology and several associated applications:

When the main solar power technology is ...	It converts sunlight ...	This technology is used ...
solar PV panels	directly into electricity using a solar PV cell	as an electricity source for household or localised use.
solar thermal	into heat, which can then be used for a variety of purposes	as an energy source for different purposes, such as creating steam to drive an electricity generator.

Figure 1A illustrates how solar PV panels start the process of converting sunlight into direct current electricity. The system inverter converts the direct current electricity into alternating current electricity, which is what household appliances use.

At night or during peak periods when the electricity generated by solar PV panels is not enough for household needs, energy is imported from the grid network. When solar PV panels generate more electricity than a household can use, excess electricity can be exported back into the grid, adding credit to the household's electricity bill.

FIGURE 1A: **How solar PV panels work**



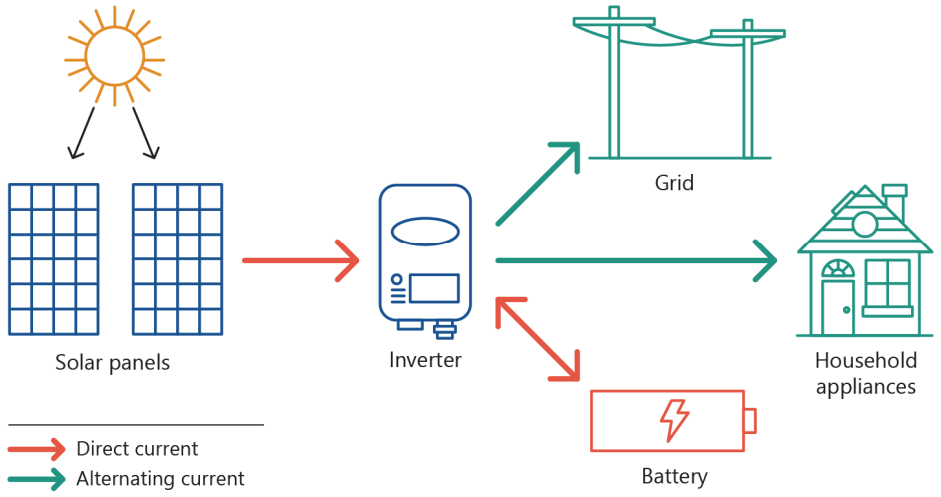
Source: *Sunny Side Up: Strengthening the consumer protection regime for solar panels in Victoria*, Consumer Action Law Centre.

In addition to solar panels, households can install secondary applications.

When the solar energy application is...	It ...
a battery	can store excess power and release it later.
a hot-water system	converts sunlight into heat using a solar thermal collector.

Figure 1B illustrates how solar batteries work.

FIGURE 1B: **How solar batteries work**



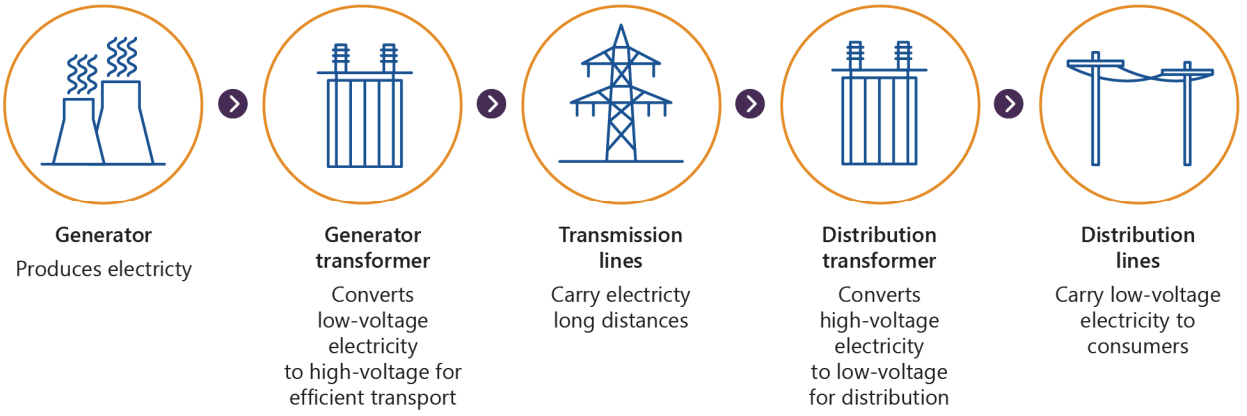
Source: VAGO.

Electricity supply

As Figure 1C shows, the current supply of electricity from traditional power generators to household consumers comprises two major components:

- Transmission lines—the system of high-voltage transmission lines that carry electricity from generators to large industrial users and local electricity distributors. This network comprises transmission lines, underground cables, transformers and telecommunications equipment.
- Distribution lines—the system of low-voltage distribution lines that carry electricity from local electricity distribution substations to homes and businesses. The network comprises poles and wires, transformers, and monitoring and signalling equipment.

FIGURE 1C: **High-voltage transmission and low-voltage electricity distribution components**



Source: VAGO.

1.2 Policy context

The Australian and Victorian governments are encouraging the generation and use of renewable energy, including solar power, through various policies and programs.

In 2011, the Australian Government introduced the Small-scale Renewable Energy Scheme (SRES), which assists households with the cost of installing solar PV panels and hot-water systems. Households receive small-scale technology certificates, which they can use to offset installation costs. The SRES is scheduled to run until 2030.

Victoria's energy policy is aimed at moving the state towards a lower emissions future and allowing independence from conventional energy supplies.

The *Renewable Energy (Jobs and Investment) Act 2017* provides for the Victorian Renewable Energy Target. The target is for 50 per cent of the state's energy sources to come from renewable energy by 2030. This builds on the state's previous renewable energy generation targets of 25 per cent by 2020 and 40 per cent by 2025. According to Solar Vic, the program will contribute up to 12 per cent of the 2025 target.

Energy regulation

The National Electricity Law (NEL), a schedule to the *National Electricity (SA) Act 1996* (SA Act):

- establishes the National Electricity Market and provides that the *National Electricity Rules* (NER)—rules about connecting to the transmission or distribution network—are legally enforceable
- confers powers and functions on the Australian Energy Market Operator and the Australian Energy Market Commission
- imposes obligations on participants in the electricity industry.

Victoria has adopted the NEL through the *National Electricity (Victoria) Act 2005*, which provides that the NEL and regulations made under the SA Act apply as law in the state.

In addition to the NEL and the NER, there are other principal legislation that regulate the electricity industry in Victoria:

- The *Electricity Industry Act 2000* regulates electricity supply and prohibits the unlicensed generation, transmission, distribution, supply or sale of electricity.
- *The Electricity Safety Act 1998* ensures the safe supply and use of electricity, and the function of ESV, which is responsible for ensuring the safety of electrical generation, transmission and distribution systems and electrical equipment.

The Energy National Cabinet Reform Committee is a forum of commonwealth, state and territory energy ministers that oversights energy market institutions including the following:

- The Australian Energy Market Commission develops rules that regulate transmission and distribution networks.
- The Australian Energy Market Operator operates energy systems including the National Electricity Market power system covering Victoria. Its responsibilities include facilitating efficient investment in, and efficient operation and use of, electricity services with respect to reliability, safety and security of the national electricity system.
- The Australian Energy Regulator regulates electricity networks and sets the maximum revenue that network businesses can recover from customers using these networks.

Electricity and energy concerns such as the integration of distributed energy resources into the grid network and potential supply shortages are coordinated at commonwealth, state and territory levels.

Feed-in tariff scheme

A solar feed-in tariff (FiT) is the amount Victorian electricity retailers pay owners of solar PV panels per kilowatt-hour for solar electricity they export to the network grid. The FiT is credited against solar PV panel owners' electricity account, reducing their bill or supplying a credit.

In July 2020, the Essential Services Commission set the minimum FiT rate at 10.2 cents per kilowatt-hour. This will decrease to 6.7 cents per kilowatt-hour by 1 July 2021.

1.3 Solar Homes Program

In August 2018, the Victorian Government announced the start of the program to encourage Victorians to install solar PV panels, batteries and SHW systems for their homes.

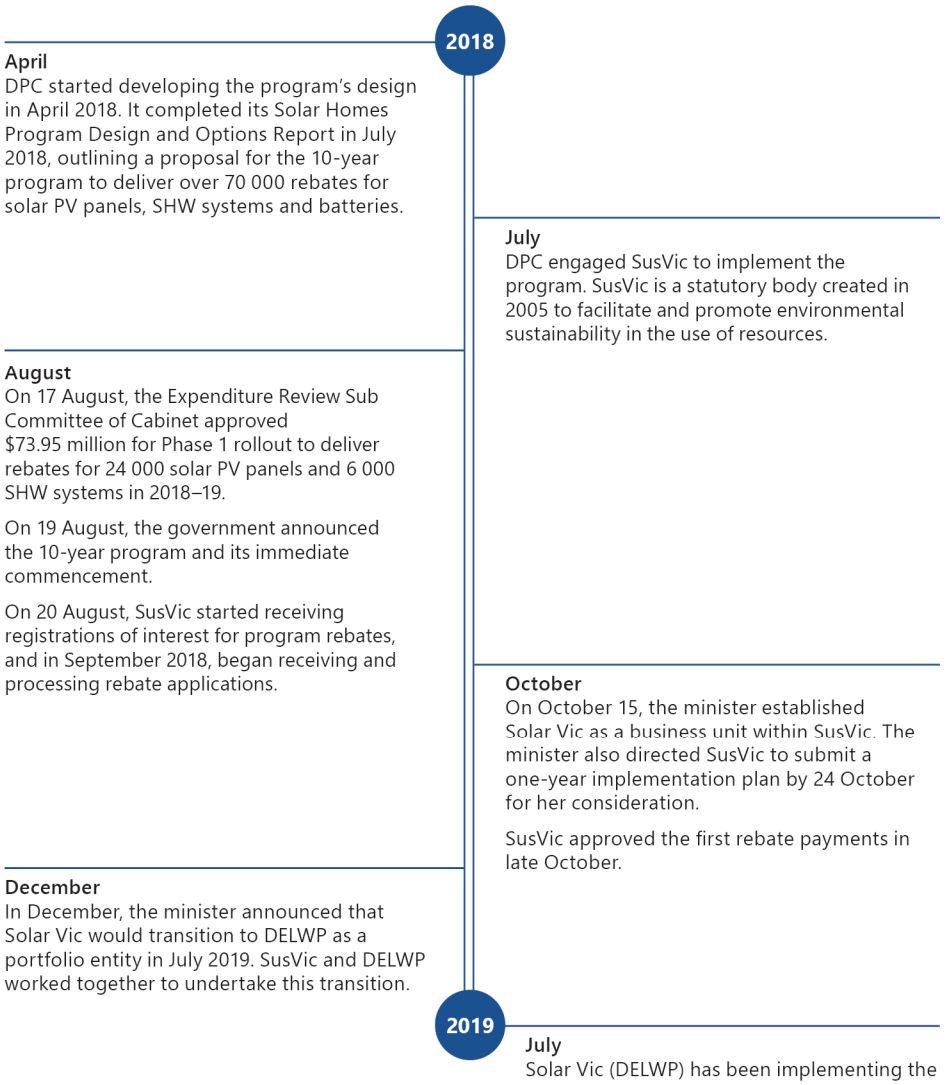
The program is a key initiative in the government's commitment to reduce energy costs, boost energy supply, create new jobs in the renewables sector and tackle climate change. SusVic managed and delivered the program from 19 August 2018 to 30 June 2019. Solar Vic became a portfolio entity within DELWP on 1 July 2019 and has been responsible for delivery since.

The 10-year program aims to provide rebates for 700 000 solar PV panels, 18 500 batteries and 60 000 SHW systems.

Program history

Figure 1D provides a detailed timeline for the program history.

FIGURE 1D: **Timeline of key dates**



Source: VAGO, based on program documentation.

Program products and eligibility criteria

The program partially rebates the cost to the consumer of solar PV panels, batteries and SHW systems.

Key eligibility requirements for solar PV panel rebates applicants include that they are the owner-occupier of the property and that the combined household income is less than $180 000. More detail about the eligibility criteria is outlined in Appendix D.

Customers apply online to confirm their eligibility for program rebates. The retailer provides customers quotes for solar PV panels, battery or SHW system through the same online system. When the customer decides to proceed with the purchase, it pays the retailer the value of the system less the applicable program rebate.

The retailer is able to claim the rebate from Solar Vic after the system is installed. Through this process, Solar Vic confirms the customer's eligibility for program rebates prior to any installation taking place.

Program requirements

Solar Vic has mandatory and recommended requirements for retailers and installers participating in the program. These are outlined in the Solar Homes program *Notice to Market* and approved products lists.

For example, retailers must be registered on the Solar Vic portal and must be a signatory to the Clean Energy Council's (CEC) *Solar Retailer Code of Conduct* (Code of Conduct). Appendix E provides more information on the requirements.

1.4 Roles and responsibilities

Solar Vic

Solar Vic is a portfolio entity within DELWP, reporting through the department's secretary to the minister.

To ensure appropriate program approvals, advice, guidance and coordination of key stakeholders, Solar Vic has established a range of governance bodies, as shown in Figure 1E.

FIGURE 1E: **Key governance bodies**

Body	Membership	Activities
PCB, renamed Solar Victoria Committee from January 2021 (January 2019)	• DELWP Secretary (Chair) • DELWP senior management • CEO, Solar Vic	• oversee the completion of the Solar Homes program Phase 1 • provide advice to the Secretary DELWP on the strategic direction and delivery of the program • provide advice to the Secretary DELWP on the strategic direction and impact of the program on the Victorian Energy Network • ensure coordination of DELWP's activities to effectively integrate solar energy sources into Victoria's electricity grid • ensure required levels of support from across DELWP to enable effective program delivery

Body	Membership	Activities
ICRG (August 2019)	• Solar Vic • Smart Energy Council • CEC • Energy Networks Australia • Electrical Trades Union • Consumer Action Law Centre • National Electrical and Communications Association • retailer businesses • solar installers • other industry representatives	• advise on safety and quality matters, and associated standards • advise on consumer protections and customer experiences • advise on technology requirements • advise on future grid requirements • advise on skills and workforce development
Solar Vic Enforcement Committee (August 2019)	• Solar Vic • ESV • WorkSafe Victoria • Victorian Building Authority (VBA) • CEC • Consumer Affairs Victoria (CAV)	• provide technical regulation advice on non-compliances identified by the audit program and through existing regulatory activities • share information on and contribute to systemic or emerging safety and quality risks • present on new and emerging risks and likely impacts to industry • share information and provide regular updates on enforcement actions undertaken • assist with stakeholder engagement following significant incidents • provide advice to Solar Vic on determining appropriate measures to ensure the integrity of the program
Solar Homes Regulatory Taskforce (September 2019)	• Solar Vic • ESV • VBA • WorkSafe Victoria • CAV	• ensure agency commitment to and active collaboration on the safety and quality of the program • provide high-level oversight of the Solar Vic Enforcement Committee • enable a strong understanding of assurance and audit activities, trends and identify any issues that need to be managed • enable discussion, advice and direction in relation to the audit program, compliance planning, regulatory strategy or industry engagement • ensure significant risks or issues of non-compliance or rectification identified in audits are responded to by responsible agencies • explore opportunities to work together to improve safety standards including options for regulatory and policy reform

Source: VAGO.

Industry and regulatory bodies

In fulfilling its responsibilities, Solar Vic consults and has partnerships with a range of industry and regulatory bodies, as listed in Figure 1F.

FIGURE 1F: **Industry and regulatory bodies' roles and responsibilities**

Agency	Roles and responsibilities
ESV	ESV is the state's energy safety regulator for gas and electricity. Part of ESV's role is to license electricians and certify electrical installations through its licensed electrical inspectors, including where powered by renewable energy, such as solar power. Solar Vic requires solar PV panel installers to hold an unrestricted Class A Electrical Licence registered with ESV.
WorkSafe Victoria	WorkSafe Victoria is the state's occupational health and safety regulator. It works to prevent workplace injuries, illness and fatalities, including in the solar energy industry.
VBA	VBA is the state's building and plumbing regulator. VBA licenses plumbers who certify SHW system installations.
CAV	CAV is the state's consumer regulator. CAV enforces compliance with consumer laws to help protect Victorians from misleading and deceptive conduct, as well as high-pressure marketing tactics. CAV also advises Solar Vic on consumer protection.
CEC	CEC is Australia's peak body for the renewable energy sector, representing renewable energy and energy storage businesses, as well as rooftop solar installers. Solar Vic requires solar PV panel installers to be certified under CEC's Solar Accreditation Scheme, and retailers taking part in the program to be signatories to CEC's Code of Conduct.

Source: VAGO.

2. Program planning

Conclusion

Neither DPC nor DELWP developed a full business case for the program. This meant that government lacked sound and comprehensive information to consider the merits of the program.

Program planning was deficient in as much as it failed to fully appreciate and effectively mitigate obvious risks of excess demand, market reliance and grid capacity.

Despite its size and complexity, only limited implementation planning had been undertaken when the program started in August 2018.

This chapter discusses:

- Program design
- Identifying and assessing risks
- Implementation planning

2.1 Program design

Effective program planning sets out the rationale for government intervention, considers options to address the established need, identifies risks and considers the views of, and impacts on, relevant stakeholders.

Limited timeframe

DPC started planning the design of the program in April 2018. According to its documentation on project assumptions and implications, DPC worked to meet the government's timeline to have it ready for announcement in 'July/August 2018 with roll out soon after'.

This provided DPC with four months for program design. DPC advised that time constraints did not allow for the development of a full business case, so it developed the Design and Options Report instead. The Design and Options Report does not set out, or make, the case for government intervention in the solar PV market. It also does not explain why the best solution to reduce Victorians' energy costs is through rebated solar systems.

DPC noted in its Design and Options Report that it needed more time for this work and said that, 'delaying announcement/delivery will enable a better product to be developed, will lower delivery risk and possibly increase the benefits'.

Limited consultation

DPC's Design and Options Report acknowledged that:

- it developed the program 'confidentially with extremely limited stakeholder consultation'
- where consultation did take place, it did not disclose the full program scope it was considering
- wider consultation could have provided 'a better understanding of risks and mitigation strategies'.

Limited options analysis

DPC's Design and Options Report was a preliminary analysis for a potential program. It was not a business case as it did not have the detail and level of analysis warranted for large-scale investments.

In presenting the case for the program, the Design and Options Report says that the 'increasing cost of living, in particular energy cost, is hurting many Victorians' and that solar PV panels 'are a proven and effective way to significantly cut household electricity bills'. It argues that as solar PV panels are often beyond the reach of many Victorians, the program will provide access to this technology by offering a 50 per cent rebate.

However, DPC does not explain how solar PV panels 'are a proven and effective way to significantly cut household electricity bills'. Moreover, DPC presented no analysis to demonstrate that providing rebated solar systems was the best way to help Victorians save money on their electricity bills.

This is particularly significant given that the Design and Options Report acknowledges that:

- the program was expected to subsidise installations that would have occurred anyway under a business-as-usual scenario or even if the program did not proceed
- unassisted, or under a business as usual scenario, the solar industry would continue at the then-rate of some 30 000 solar PV panel installations a year.

DPC did not identify any other options to address the identified need. Importantly, DPC did not include a 'do nothing' option for comparative purposes as a benchmark for assessing the cost-benefit of the proposed program. It also did not discuss how the program represents value for money, particularly in light of the potential adverse impact of accelerated solar PV panel uptake on the state's electricity network grid.

2019–20 and 2020–21 program business cases

DELWP developed two further documents it identifies as 'business cases' for the program:

- 2019–20 Solar Homes (2019–20 business case)
- 2020–21 Solar Homes: Growing Victoria's Solar Industry (2020–21 business case).

However, like the Design and Options Report, neither of these sufficiently articulates the case for change. These documents do not address the critical question, 'why should government be involved?' They also do not present the option of discontinuing the program to provide a comparison against which to determine the best approach for providing value for money.

The options presented in these documents are not alternatives to deliver the identified need. Rather, they are options on the number of rebates needed to meet consumer demand for solar PV panels and batteries.

While government departments are only mandated to comply with the Department of Treasury and Finance's (DTF) *Investment Lifecycle and High Value High Risk Guidelines: Stage 1—Business Case* for capital projects, the advice is useful for other large-scale investments. It stresses that a business case should consider the whole investment lifecycle and that if there are any changes, agencies should update the business case and assess ongoing business justification.

In developing the 2019–20 and 2020–21 program business cases, DELWP missed opportunities to develop a full business case and provide a sound basis for government intervention and investment of this scale.

2.2 Identifying and assessing risks

In planning any major program or significant market intervention, identifying, understanding, analysing, assessing and treating risks that could block its delivery and threaten the achievement of intended benefits is an important part of the process. The *Victorian Government Risk Management Framework* sets out the requirements for this process.

DPC's Design and Options Report failed to fully consider the risks of, and mitigating actions against, oversubscription, market reliance and grid impact.

Oversubscription risk (excess demand)

DPC's Design and Options Report identified the risk of oversubscription stemming from significant excess demand for 50 per cent rebated solar PV panels as a 'potential cause for cost overruns'. It considered this to be a 'manageable risk'. It identified potential mitigations as:

- 'undertaking consumer research'
- 'targeted stakeholder consultation'
- 'phased rollout of approved products list requirements'
- 'capacity to restrict approved products list'
- 'capacity to control and reduce approved installer numbers'
- 'capacity to progressively reduce subsidies to ease demand and control expenditure'.

Unlike DPC, in late August 2018, SusVic's Board identified oversubscription as a significant risk that needed to be carefully considered and addressed. Reflecting on its previous experience in implementing similar programs, the SusVic Board highlighted the need to mitigate excessive demand for rebates.

However, SusVic's October 2018 risk management plan assessed the risk of oversubscription as MEDIUM with potential consequences of the oversubscription, including:

- 'rebates run out early'
- 'reputational damage to SOLV [Solar Vic] and Victorian government'
- 'poor quality installations due to high demand for installers'
- 'impact on companies'.

It identified as mitigating actions monitoring uptake and developing a communications strategy. SusVic's limited mitigations did not help it to manage the high number of applications from Victorians who quickly responded to the rebate offer. Section 3.1 discusses how the lack of proper planning to identify and prepare for the risk of oversubscription led to temporary program closures from 12 April to 30 June 2019 and further supply disruptions from July to December 2019.

Market reliance and lack of an exit strategy

The government's response to substantially increase the number of offered rebates to meet demand impacted the program's budget. To date, Solar Vic has requested and received additional funding of $31.3 million for more rebates and operational expenses for 2018–19 and 2019–20:

- February 2019: additional funding of $2.5 million and budget surety of $9 million
- 2019–20 budget process: $7.46 million
- 2019–20 DELWP reprioritisation: $12.295 million.

The 2019–20 business case acknowledges that:

- It would be difficult to manage future demand within the planned program budget without further disrupting the residential solar energy market.

- Retailers and installers may be setting prices against the benchmark price established by the rebates, as indicated by the stabilisation of the price, contrary to expectations that it would decline.

Despite these concerns around potential industry reliance on the program, to date, Solar Vic has not provided advice to government on possible program exit strategies and how to mitigate any impact on the solar sector.

Grid impact

The state's electricity grid was not designed to accommodate high levels of DER, such as solar PV panels.

While existing infrastructure can usually accommodate low levels of energy exported from solar PV panels, high levels of penetration result in voltage rises, which can lead to damage and deterioration of the current network. Unmanaged solar energy exported from residential rooftops can lead to power failures and lower quality electrical supply across the network.

DELWP advised that Victorian distribution businesses have sought funding over the 2021–26 regulatory period to address voltage levels in their network, which is expected to improve this situation.

DELWP noted in its 2019–20 business case that grid issues need to be addressed early 'to minimise program costs, maximise value for energy consumers and the economy and maintain public confidence in the program'.

DPC's Design and Options Report indicated that 'the total unmitigated impact on the grid would cost consumers approximately $320 million over eight years'. This analysis is based on an additional 400 000 to 500 000 solar PV panels and 8 000 solar batteries between 2018–19 and 2025–26, which is less than the program's intended 700 000 solar PV panels and 18 500 solar batteries.

DPC's Design and Options Report explained that:

> 'the higher uptake of solar PV increases and redistributes network costs in two ways:
>
> - higher costs managing voltage rises associated with solar power feeding into the grid
> - households without solar PV pay a higher proportion of the total costs of maintaining the network, as households with solar PV pay less network costs from reduced electricity consumption'.

DPC assessed the risk of network instability and failure as HIGH and identified the following mitigating actions:

- requiring smart inverters or demand-response enabled devices with solar PV panel installations to help manage network voltage and frequency levels
- $10 million Grid of the Future funding to DELWP to facilitate planning for the future integration of DER resources across Victoria.

The complex and significant work required to upgrade grid infrastructure to minimise adverse grid impact and maximise the benefits of solar energy requires considerable time and resources.

DELWP acknowledged that while the $10 million funding will allow the work for the Grid of the Future to commence, 'major risks to the grid would remain outstanding' because the $10 million Grid of the Future 'is insufficient' to:

- 'fully de-risk the grid impacts of the program'
- 'address the scale of the challenges that the program introduces'.

Neither DPC nor DELWP explored other options or undertook a cost-benefit analysis to consider whether the program should occur after reforms to support grid infrastructure were in place.

Section 3.3 discusses weakness in Solar Vic's processes that mean some consumers may realise that they will not be able to fully or partially export to the grid only after their solar energy systems have been installed.

Impact on consumers

Solar Vic is privy to confidential industry data that shows that, despite changes to inverter standards, some DNSPs are increasingly constraining the ability of new connections from either fully or partially exporting to the grid. Solar Vic's March 2020 documentation notes that this issue will persist in the coming years as grid issues continue and more Victorians install solar PV panels.

However, the impact is not limited to new customers who are specifically constrained by their DNSPs from exporting to the grid. When network voltage is not optimal, program participants, in general, are limited in their ability to both self-consume and sell the electricity generated by their PV panels. This is because under current Australian standards, inverters are forced to reduce output when voltages are high, reducing both export and self-consumption.

Program participants are therefore increasingly at risk of not being able to fully realise the benefits of their investment.

2.3 Implementation planning

Implementation planning helps effective program delivery. It guides the management of project deliverables, the tracking of compliance against program requirements, timelines, budget and intended outcomes. It also identifies operational and environmental risks and responses to them.

Phase 1 implementation planning

Other than the draft summary timeline DPC developed in July 2018, there was no implementation plan to guide SusVic's delivery of the program when it launched on 19 August 2018.

As directed by the minister, SusVic completed a draft implementation plan on 24 October 2018 and used it to guide project delivery from that time. This draft plan included limited information on scope, timeframes for key activities, budgets and resourcing. Moreover, it did not discuss quality management. SusVic advised the minister's office that it would consult DELWP on the draft implementation plan before finalising it.

SusVic finalised its implementation plan in December 2018, four months into the delivery of Phase 1 of the program.

Given the large and complex nature of the program, an implementation plan should have been in place when it started. The minister's October 2018 directive to SusVic to draft an implementation plan for her consideration acknowledges its value as an important project management tool.

Figure 2A shows our assessment of DPC's July 2018 draft timelines and SusVic's December 2018 implementation plan. We include the October 2018 draft implementation plan, which SusVic provided to DELWP for consultation.

We assessed these plans against *DTF's Investment Lifecycle and High Value High Risk Guidelines: Stage 3—Delivery* as it represents better practice. We used this guideline to highlight whether the plans discussed the development of documented processes to manage program scope, time, quality and cost.

The December 2018 implementation plan covered the major components required, such as a risk management plan and priority activities with timelines. However, it did not have a monitoring and evaluation element to assess program performance. The implementation plan also did not outline program controls and processes. However, in practice, SusVic used its dedicated Board subcommittee, internal project control board and its project management office for program oversight.

Section 3.1 discusses how limited implementation planning affected SusVic's ability to manage the significant demand for solar PV panels and set controls to ensure compliance with program requirements.

FIGURE 2A: **Assessment of Phase 1 implementation plans**

Components of implementation plan	July 2018 DPC's draft timelines	October 2018 SusVic's draft plan	December 2018 SusVic's completed plan
Scope management Program products (policies and processes/criteria for each product type) and related processes (consultation, communications, training, risk management, audit program, IT systems, data analytics, reporting arrangements)	No/little discussion	Some discussion	Sufficient discussion
Time management Due dates and priorities for key activities, with acquittal of date changes	Some discussion	Some discussion	Sufficient discussion
Quality management Monitoring and evaluation processes, quality assurance and controls, change management plan	No/little discussion	No/little discussion	No/little discussion
Cost/resources management Program input requirements, including budget, staff and resourcing availability/capability, governance arrangements	No/little discussion	Some discussion	Sufficient discussion

Source: VAGO.

Phase 2 implementation planning

SusVic started work on the Phase 2 implementation plan in December 2018 with the intention of completing it by 31 January 2019. However, SusVic advised us that it did not complete it following:

- the minister's announcement that the program's management was to transition to DELWP by 1 July 2019
- its agreement with DELWP that it would focus on delivering Phase 1 and support the smooth transition of the program to DELWP.

DELWP undertook detailed planning to transition Solar Vic from SusVic to become a portfolio entity within DELWP by 1 July 2019. We sighted transition planning documents that were governed and oversighted by DELWP's project control board.

These transition planning documents assisted the orderly transfer of the program and Solar Vic to DELWP but did not cover Phase 2 program components including detailed deliverables, timelines, resourcing requirements, accountable persons and risks and mitigation. This limits transparency about how Solar Vic planned to deliver program Phase 2 and accountability for program achievement.

However, the program benefits from DELWP's oversight of Solar Vic. DELWP's governance arrangements, including those it uses to manage similar large and complex programs, assist Solar Vic's program delivery.

We reviewed these governance arrangements and they largely provide Solar Vic guidance to manage project scope, time, cost and quality (see Figure 2B). Central to this are the monthly PCB meetings chaired by DELWP's Secretary. These meetings:

- provide executive oversight of program planning and delivery, and enable coordination of activities across DELWP where relevant to the program
- have a standing agenda that includes Solar Vic's forward plan of tasks (this does not comprise an implementation plan as lacks detail such as due dates, responsible people and resources required), updates on program implementation, DNSP dashboards and Solar Vic's consultation with relevant agencies and industry bodies
- allow senior executives to monitor the program's strategic, operational and financial risk profiles and prescribe internal audits on specific issues.

In July 2019, DELWP identified the program as a strategic risk that could impact its achievement of departmental outcomes. As such, DELWP set mitigating actions, which its senior executive team actively manages with Solar Vic and the department's risk and audit committee. Mitigating actions include:

- collaboration across Solar Vic and DELWP's Energy division
- re-assessment of budget requirements to meet program needs
- development and implementation of Solar Vic's assurance framework map to document operational risks and controls to address them in order to ensure compliance with program rules and procedures, such as, controls to effectively prevent applicants from securing more than one rebate
- inclusion in DELWP's internal audit program, which has completed two audits:
  - June 2020 Solar Homes Program: Application, Payments and Complaints
  - November 2020 internal audit report.

DELWP's oversight provides guidance to Solar Vic in managing the program and enables the department to oversee details of its delivery.

FIGURE 2B: **DELWP's program oversight of Solar Vic's Phase 2 implementation**

Components of implementation plan	DELWP's program oversight	VAGO assessment
Scope management Program products (policies and processes or criteria for each product type) and related processes (consultation, communications, training, risk management, audit program, IT systems, data analytics, reporting arrangements)	PCB meeting papers show that discussion on project scope activities is a standing agenda item in the monthly meetings. Collaboration with DELWP's Energy division and industry groups—mitigating actions as a departmental strategic risk.	
Time management Due dates and priorities for key activities, with acquittal of date changes	PCB meeting papers show that Solar Vic's forward plan (Gantt chart) is a standing agenda in the monthly meetings. However, there is no overall project schedule defining high-level activities, nor monitoring of whether set timelines are completed as intended.	
Quality management Monitoring and evaluation processes, quality assurance and controls, change management plan	DELWP's internal audit program included a review of Solar Vic's quality assurance controls. In response to the November 2020 internal audit report, Solar Vic started developing its assurance framework map to identify operational risks across the lifecycle of its transactions. Solar Vic completed its MEL framework in December 2020. Reporting on Solar Vic's safety audit programs is a standing agenda item in PCB meetings. However, given program scale and complexity, the program could have benefited more from these quality controls and MEL framework being in place earlier in Phase 2.	
Cost/resources management Program input requirements, including budget, staff and resourcing availability or capability and governance arrangements	DELWP identified the program's costs as a risk through its departmental strategic risk process and as a mitigation required Solar Vic to reassess its budget requirements to meet program needs. However, PCB meeting papers show that it considered the financial position of Solar Vic only once since July 2019.	

Note: Green = sufficient coverage; orange = some coverage.
Source: VAGO.

3. Program delivery

Conclusion

Limited planning and stakeholder consultation for the program adversely affected its delivery.

Poor demand management led to pauses in rebate rollout, which caused workflow issues for the solar industry. The program also began with limited controls to manage safety and quality risks, fraud and grid limitations.

Solar Vic has made substantial progress in addressing these issues; however, work remains, including to improve consumer protections. Solar Vic has also significantly increased engagement with industry and is better staging rebate releases and using insights from its audits to improve safety within the sector.

This chapter discusses:

- Managing demand
- Safety and quality assurance
- Insufficient controls
- Consumer protection

3.1 Managing demand

By January 2019, after only five months into Phase 1, the program's 2018–19 allocation of 24 000 solar PV panel rebates was fully subscribed.

Phase 1: stoppage and allocation adjustments

To continue the program beyond January 2019, the minister sought supplementary funding for additional rebates and more staff to help speed up the application process. On 20 February 2019, the government approved an additional $11.59 million in funding, with:

- $2.5 million operating costs including to process the application backlog
- $9.09 million for a further 4 000 solar PV panel rebates.

In March 2019, the government approved another 4 000 rebates capping total solar PV panel rebates at 31 350 for 2018–19. These additional 8 000 rebates were also quickly fully subscribed. SusVic then had to pause the program between 12 April to 30 June 2019.

None of DPC's nor SusVic's planning documents up to this point envisaged or identified the risk of program closure as a consequence of oversubscription. The lack of industry consultation in developing the program design was a likely contributing factor to this issue.

DELWP notes that the lack of rebates resulted in significant customer dissatisfaction, adverse media attention and industry backlash. It also acknowledges that the program closure over three months—April to June 2019—reduced sales of solar PV panels significantly, negatively impacting businesses and creating pent-up demand as customers deferred purchases and installations.

Industry representatives expressed concern about the program's design and management and claimed the program had reduced the solar market and in effect put a ‘cap’ on the number of installations available for businesses. DELWP notes that:

- Industry members complained that the boom-and-bust program cycle meant prolonged periods of economic uncertainty for the industry.
- Ministers received more than 300 complaint letters between April and August 2019.
- Peak bodies urged government to make alterations, such as tightening eligibility criteria or increasing the number of rebates, to the program to allow for continued work in the industry.

In Section 3.3, we discuss how insufficient controls contributed to SusVic's difficulty in managing demand during Phase 1.

Phase 2: continued impact of high demand

Solar Vic recommenced the program in July 2019, and as shown in Figure 3A, high demand continued.

In August 2019, the minister and treasurer consulted with industry representatives and agreed to significantly increase the number of rebate allocations for September to November 2019 to address 'pent-up' demand.

Following this agreement, the minister sought and received funding from the Expenditure Review Committee for an additional 23 420 solar PV panel rebates, bringing the total to 63 420 for 2019–20. As a further program refinement, Solar Vic released the rebates fortnightly from September 2019 to provide smoother purchasing patterns for industry.

FIGURE 3A: **Supply and demand pattern for solar PV panel rebate allocations following program closure**

Rebate release date	Allocated	Time to fully subscribe
July 2019—monthly release	3 333	3 days
August 2019—monthly release	3 333	90 minutes
5 September 2019—fortnightly release	6 500	40 minutes
17 September 2019—fortnightly release	3 500	18 minutes
1 October 2019—fortnightly release	4 000	81 minutes
16 October 2019—fortnightly release	4 500	12 hours
1 November 2019—fortnightly release	4 500	6 days
18 November 2019—fortnightly release	4 500	7.5 days
2 December 2019—fortnightly release	3 000	24 hours
17 December 2019—fortnightly release	4 500	42 minutes
2 January 2020—fortnightly release	2 000	not fully subscribed until next release
16 January 2020—fortnightly release	3 500	not fully subscribed until next release
3 February 2020	4 500	not fully subscribed until next release

Source: VAGO, from Solar Vic documents.

By January 2020, demand for solar panel rebates stabilised. Solar Vic has better managed the uptake of rebates from September 2019 with the increased number of rebates and its fortnightly allocations.

Applications for solar PV panels declined from January to March 2020 as the rebate value was lowered from $2 225 to $1 850 and the coronavirus (COVID-19) pandemic set in. However, demand increased again in the last quarter of 2019–20. By the end of the 2019–20 financial year, Solar Vic reported in its July 2020 ministerial report that it has processed and approved 54 278 solar PV panel rebates for the year.

In April 2020, Solar Vic announced an additional 65 000 solar PV panel rebates for the 2020–21 financial year. This translates to a total of 162 170 solar PV panel rebates from August 2018 until June 2021.

Managing low demand for SHW systems

Unlike the experience with solar PV panels, Solar Vic data shows that the demand for SHW systems has been low since program start. As at 30 December 2020, approved applications for SHW systems account for less than 9 per cent of total available rebates.

Solar Vic's October 2020 review of the SHW system component of the program found the following reasons for the low SHW system rebate uptake:

- the program allows only one solar rebate per household and consumers prefer solar PV panels
- the application process is difficult and time-consuming as it is largely manual unlike applications for solar PV panels, which are done digitally through the Solar Vic online portal
- the program requires gas-boosted SHW systems in certain instances, significantly limiting consumer choice
- plumbers' lack awareness and understanding of SHW system rebates and so do not positively promote them or have skill or experience in installing them
- the program's SHW system rebates are not as well-known by consumers as the solar PV panel rebates
- many households replace their systems with like-for-like in emergency situations.

Solar Vic advised that it is developing a work program to address these issues.

Managing initial low demand for solar batteries

The initial demand for the program's solar battery rebates was low.

In September 2018, the government announced that it would offer the program's battery rebates in growth areas where many homes already have solar PV panels. In July 2019, Solar Vic started offering battery rebates to 24 Victorian postcodes that have:

- high population growth
- high solar PV panel penetration rates
- been identified by DNSPs as areas where batteries would help meet the growing demand for electricity and potentially defer grid augmentation.

However, the uptake from households within the 24 postcodes was low. From July to October 2019, Solar Vic only received 120 battery rebate applications. Solar Vic advised that its analysis revealed that the pool of eligible applicants in these postcodes is relatively shallow because many households in the postcodes have already availed themselves of the program's solar PV panel rebates and are therefore ineligible for battery rebates.

On Solar Vic's advice, the minister approved expanding the eligible suburbs from 24 to 104 postcodes in November 2019. The additional 80 postcodes were chosen in line with the criteria set out in July 2019.

Even so, the demand for battery rebates continued to be lower than expected. Less than half of the rebates available for 2019–20 had been allocated within four months of the end of the financial year.

In response, Solar Vic again sought ministerial approval for an additional 143 postcodes, increasing the number of eligible postcodes to 247 by 1 March 2020.

While the demand for battery rebates increased as a result of this expansion, the total number of approved battery applications was 935, or 65 short of the total 1 000 allocated rebates for 2019–20.

From 1 July 2020, all Victorian postcodes were eligible for battery rebates. The removal of postcode restrictions significantly increased the demand for solar batteries. Solar Vic started offering fortnightly rebate allocations to manage the growing demand.

Due to the improved demand, Solar Vic increased the total number of available battery rebates to 5 000 for 2020–21. As of 26 February 2021, however, Solar Vic has approved 1 289 battery rebates. It is therefore not likely that the extra rebates will be fully subscribed for this financial year.

3.2 Safety and quality assurance

The importance of setting up appropriate and effective safety and quality controls when governments provide stimulus to certain industries, was highlighted in the findings of the 2014 *Report of the Royal Commission into the Home Insulation Program*. While DPC recognised this risk in the Design and Options Report, most safety and quality controls were not in place at program start.

Solar Vic is continuing to put safety and quality assurance arrangements in place and undertake activities to ensure that:

- solar systems are installed in a way that minimises the likelihood of injury and reduces the risk of non-compliance with electrical and plumbing standards
- consumers, retailers and installers adhere to program rules and requirements
- Solar Vic's September 2020 Safety and Quality Assurance Framework (the Framework) states that its purpose is 'to describe the mechanisms which allow Solar Vic to implement the program with safety and quality as its primary priorities'. The Framework's components include:
  - an approved product list
  - installer accreditation
  - retailer accreditation
  - industry training on safety and quality
  - consultation with relevant government and industry stakeholders
  - a safety audit program
  - an assurance framework map.

The first two components were in place from August 2018 when the program started. SusVic started developing the next four components during Phase 1 of the program. In November 2020, Solar Vic started developing its assurance framework map to identify key operational risks and controls through the lifecycle of its transactions from application to the payment of rebates.

Installer accreditation and approved retailers

The program requires solar PV panel and battery installers to be accredited with CEC. This has been a program requirement since it started in August 2018.

Accreditation aims to confirm that an installer or retailer complies with the CEC's Code of Conduct requirements and undertakes industry-specific training. It is a good preventative control for program safety and quality because accreditation comprises:

- completion of relevant CEC training units
- submission of eligibility documents (training certificates, public liability insurance of at least $5 million), electrical licence and working safely at heights certification, among other components
- completion of online assessments to demonstrate relevant knowledge.

In addition to these requirements, in October 2018, the minister required all solar retailers wishing to participate in the program to be signatories to the Code of Conduct by 1 November 2019. Solar Vic advised that Victoria is the only jurisdiction that requires retailers to adhere to the Code of Conduct.

CEC investigates retailers' breaches of the Code of Conduct and publishes a list of current and past suspensions and cancellations from its program on its website.

Approved products list

The program also requires retailers and installers to use CEC-approved solar products. This requirement was in place when the program started in August 2018.

However, for Phase 1 installations, SusVic did not have controls in place to ensure that installers used approved products prior to paying out the rebate. Unless the installation was included in SusVic's safety audit program, which checked 5 per cent of installations each year, there was no way to know that only approved products were used.

For installations after 1 July 2019, Solar Vic's revised application process enables it to check the use of approved products through retailers' quotes, which include product specifications.

Industry training

Together with the Office of the Victorian Skills Commissioner and key industry representatives, SusVic developed a safety training course specifically for solar panel installers, Working Safely in the Solar Industry (22515VIC).

The objective of 22515VIC is to provide installers with specific skills to install solar panels and associated equipment, and to work safely at heights and on roofs. The Department of Education and Training (DET) accredited 22515VIC on 1 July 2019. DET noted that while there are other safety training programs available to installers, there had been nothing before 22515VIC that is specific to the requirements of solar energy system installers.

Solar Vic requires installers to complete 22515VIC by 30 June 2021. As at February 2021, Solar Vic advised that 1 200 installers, or 40 per cent, of its training target of 3 000 installers, have completed the training.

A customised solar industry course, such as 22515VIC, has the potential to help enhance program safety and quality. However, the fact that it will not be mandatory until July 2021 means that for the first three years of the program, systems were mostly installed by workers without this solar industry-specific qualification.

Consultation with government and industry stakeholders

The Framework states that Solar Vic will continue to work with relevant government and industry stakeholders to improve the program's standards on safety and quality.

In contrast to DPC's confidential and limited consultation during program planning, SusVic (from September 2018) and then Solar Vic, began consulting more broadly and extensively with government and industry stakeholders to identify and manage safety and quality risks. Section 1.4 discusses these engagements in greater detail.

Meeting minutes on these engagements show that Solar Vic is using these consultations to better understand safety and quality issues. It is also working collaboratively with industry and regulatory agencies to better manage identified risks.

For example, the February 2020 ICRG meeting minutes show that changes to approved product specifications for solar PV inverters to enhance safety and quality were informed by technical input from ICRG members. These requirements were included in Solar Vic's *Notice to Market April 2020*.

In April 2020, through information presented by ICRG members, Solar Vic advised the minister on the safety risks of installing direct current isolators in roof solar PV systems in accordance with *AS/NZS 5033:2014 Installation and safety requirements for photovoltaic (PV) arrays*. Solar Vic also wrote to Standards Australia about the issue, saying that ICRG members are aware water damage within direct current isolators is a common source of fire damage for solar PV panels. We understand that Standards Australia is currently reviewing some of its standards for renewable energy product requirements, including for direct current isolators.

Safety audit program

To date, there has been no report of program installations causing fire or other harm.

However, as at 30 August 2020, Solar Vic's safety audits found that 33.4 per cent of installations were not 'installed to standard' and were either:

- unsafe (2.2 per cent), or
- in need of rectification (31.2 per cent).

Solar Vic acknowledges that this extent of substandard installations is unacceptable and is targeting a compliance rate of between 87.5 to 92.5 per cent.

Our review of 4 591 results of audit reports completed as at February 2021 shows a slightly higher rate of substandard installations:

- unsafe (2.57 per cent), or
- in need of rectification (34.28 per cent).

Figure 3B shows that audited installations completed in 2019–20 had a higher compliance rate, with 'adequate' and 'improvement identified' ratings of 67.9 per cent, compared to 53.31 per cent for those completed in 2018–19.

FIGURE 3B: **Audit results for installations completed in 2018–19 and 2019–20**

	2018–19		*2019–20*	
Ratings	**Number**	**%**	**Number**	**%**
Adequate	555	30.38	336	14.00
Improvement identified	419	22.93	1 293	53.9
Needs rectification	794	43.46	718	29.93
Unsafe	59	3.23	52	2.17
Total	**1 827**		**2 399**	

Source: VAGO, from Solar Vic documentation.

Certificates of electrical safety

Solar Vic's installation audits provide useful information about the operation of the program. They also bring to light installation issues in solar systems that have passed ESV's electrical inspections and received CES. Solar Vic is actively using the results of its audits to support improvements in the solar installation sector.

Whenever an electrician installs electrical products, including solar systems, they must provide a CES to the property owner. A CES represents confirmation that the installation was done by an appropriately qualified person and carried out in accordance with required electrical standards. The fact that as much as a third (33.4 per cent) of audited solar systems that have previously received CES are subsequently assessed 'substandard' under Solar Vic's safety audit program raises concerns that ESV's electrical inspection program may not be delivering optimal safety outcomes for solar system installations.

In response, Solar Vic started engaging with ESV and WorkSafe Victoria about the audit results, including the electrical standards that installers have most commonly not complied with.

Solar Vic advised that in 2020, working on information from its safety audit program, ESV commenced, but is yet to complete, an independent review of its electrical inspection regime to:

- identify any indication of negligence or fraudulent activity on the part of LEIs
- review the extent and adequacy of ESV's oversight of the inspection program
- identify any gaps in the regulatory framework, including entry pathways, training, qualifications, licensing and market drivers for participants.

Suspensions and cancellations

Solar Vic holds retailers responsible for the quality of installations and advised that it was monitoring six retailers for poor installation performance during the audit. Solar Vic holds retailers to account for systemic issues to ensure retailers are more discerning about who they choose to complete installations for their customers.

Solar Vic suspended or cancelled 11 retailers from the program in 2019–20:

- Two retailers were suspended due to their failure to provide evidence of having rectified solar energy systems graded as non-compliant in Solar Vic audits within the required timeframe.
- One installer was suspended following a successful WorkSafe prosecution for failing to provide and maintain a passive fall protection device, such as a guard railing on the roof edge or a safety harness, and failing to ensure that construction work was conducted in accordance with a safe work method statement.
- One retailer was cancelled for arranging solar installation to be undertaken by unlicensed workers.
- Seven retailers have been suspended as a result of CEC suspending or removing them from its accredited list of retailers.

Limited information from audit reports

We found considerable variance in the level of detail included in audit reports. While some provide assessments for all checklist items, many either only highlight details of non-compliance or just indicate a summary assessment.

For example, we sighted audit reports that have 'adequate' as the overall rating and state, '[T]he system complies with the majority of standards and requirements for installation. There were no major safety risks identified on this system during the inspection'.

However, because no detail is provided on the standards that the installations did not comply with, it is not possible for us to verify that the 'adequate' assessment is appropriate, or should instead be 'improvement identified' or 'needs rectification'.

Solar Vic's service provider management protocol states that in their reports, auditors must present findings against all items in the audit checklist, regardless of whether an installation is compliant or non-compliant with the standard.

However, Solar Vic advised that it expects auditors to note only instances of non-compliance in their reports. Solar Vic also said that it is able to verify assessments by asking auditors to provide their checklist assessments at a later date. This is not an efficient process. Requiring a completed checklist in audit reports, as indicated in Solar Vic's service provider management protocol, would allow it to readily verify the accuracy of the audits' overall assessment rating.

Discrepancy in audit reports

From a review of 31 randomly selected audit reports, we found three (10 per cent) recorded a rating that is not consistent with audit findings. These three reports obtained a better rating than what Solar Vic's safety audit program procedures require.

Following our review, Solar Vic checked its audit reports and advised that it found 441 September 2018 to December 2019 audit reports with similar discrepancies. This translates to 9.6 per cent of all 4 591 audit reports completed as at February 2021 having similar discrepancies.

Solar Vic explained that in contrast to current requirements that the overall rating is the lowest individual assessment for the installation, its process prior to August 2019

allowed auditors to determine an overall rating independent of individual checklist assessments. Solar Vic further explained that five reports completed from September to December 2019 had similar discrepancies, and this was due to providers adjusting to the new process.

Verification of rectifications

The November 2020 internal audit report found that Solar Vic has not required independent verification that retailers identified through audit as needing to complete rectification works had done so. Instead, Solar Vic relied on retailers to self-report that they have rectified the systems to comply with standards.

Solar Vic advised that it is working to develop a process for its audit service providers to verify completed rectification work in response to this finding.

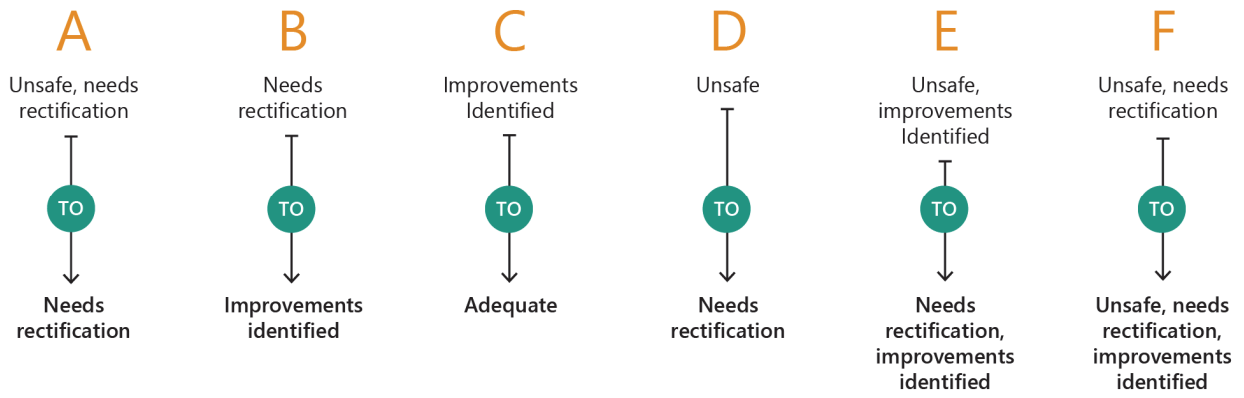
Audit rating categories

Solar Vic has revised its audit categories twice since June 2019. These changes mean that previously assessed installations, if re-assessed, could receive a less severe assessment, for example, from 'needs rectification' to 'improvement identified'.

Solar Vic explained that the changes are meant to better describe the categories as well as the actual impact of non-compliance on the safety of installations. For example, Solar Vic notes in relation to non-compliance with the requirement to put 'PV' or 'SOLAR' labels on a system's array cabling that labelling does not affect the quality or safety of installations. Solar Vic also explained that it provides additional guidance to auditors on how to apply the new audit rating categories.

Figure 3C shows the second (most recent) changes.

FIGURE 3C: **Changes in Solar Vic's audit categories**



Note: Letters A to F represent standards that auditors check for compliance. The rating immediately below the letters were the corresponding rating/s that auditors could give when these standards were not complied with. The ratings below the arrows represent the new ratings per Solar Vic's changes to its audit rating categories.

Source: VAGO, from Solar Vic documentation.

As previously stated, Solar Vic is aiming to improve the compliance rate of installations. However, Solar Vic's recalibrations of its audit rating categories could also lead to improved audit results. Therefore, any actual result improvements, such as those indicated in Figure 3B, may at least be partly attributable to the changed audit categories.

Appendix F provides more details on the audit category changes.

3.3 Insufficient controls

Gaps in Solar Vic's assurance controls mean that is unable to fully oversight program implementation and ensure compliance with its policies and procedures.

Solar Vic is aware of these limitations and acknowledges that its assurance controls 'remain in relative infancy'. However, it is working to address identified issues.

Assurance framework internal audit

Solar Vic's assurance processes—controls in place to assure that program rules and procedures are complied with—were reviewed as part of the November 2020 internal audit report.

This report assessed Solar Vic's assurance processes as 'inconsistent' and 'evolving'—with significant opportunity for improvement. The report found that Solar Vic had no assurance framework map that:

- documents all operational risks and the controls to address them
- allows control gaps to be identified and addressed.

The report also identified operational and eligibility risks that require new or additional assurance controls to ensure compliance with program policies and procedures. These include:

- no controls to ensure retailers confirm and obtain pre-approval with DNSPs that customers are able to connect to the grid prior to installation
- no independent verification of the completion of rectification works following a safety audit of solar system installations.

Solar Vic is working to address the gaps identified and, as a start, has developed an assurance framework map that aims to identify key operational risks and controls to address them, as well as allow control gaps to be continually identified and addressed. Solar Vic will report on its progress to DELWP's risk and audit committee by July 2021.

Pre-approval for grid connection

The program is a key contributor to Victorian residential solar PV panel installations, with installations rebated through the program accounting for 85 per cent of the residential solar PV panel market in 2019–20.

As noted in Chapter 2, increased solar PV panel installations add pressure on the electrical network grid. It also constrains the ability of some households to export electricity to the grid either fully or partially.

Solar Vic's October 2020 PCB meeting papers noted that a growing number of solar PV owners only find out after system installation that they will be unable to export generated solar power.

This may happen in instances where:

- the installer or retailer did not apply for DNSP pre-approval to connect and export to the grid, or
- the installer or retailer applied for pre-approval but did not tell the customer that their ability to export to the grid would be either fully or partially constrained.

Solar Vic advised that it is part of its requirements for retailers to obtain DNSP pre-approval and include this information in their quote to the consumer. However, our review in November 2020 showed that Solar Vic's documented solar PV panel rebate application process did not include this requirement. Nor were solar PV panel rebate applicants advised that they should check the retailer's quote to confirm that it includes information on their ability to export to the grid. This was in contrast to Solar Vic requirements listed for solar battery rebates, which clearly show the need to get pre-approval from DNSPs.

This is a significant issue as it means that solar PV panel customers may be making their purchases without having all the information they need to make an informed decision. Solar Vic needs to ensure that applicants have full knowledge of the extent to which they can sell their unused electricity to the grid prior to deciding their purchase.

Following our audit findings, Solar Vic revised its available information, which now reflects getting pre-approval from DNSPs as a step in the solar PV rebate application process. Even so, there is no clear requirement for the retailer to include details of the pre-approval outcome—stating whether the customer would be partially or fully constrained from exporting to the grid or whether there would be no constraints—in its quote to the customer.

Limited procedural controls

Solar Vic is working to further enhance controls in its application process.

Hidden installations

When the program closed in April 2019, SusVic discovered from industry complaints that up to 3 000 consumers installed their solar PV systems between August 2018 and April 2019 without first confirming their eligibility for rebates.

Insufficient controls and oversight meant SusVic had no visibility of these installations. It referred to them as 'hidden installations'.

SusVic's rebate application process comprised a two-stage process that started with an eligibility check. Following a review of submitted documentation, SusVic issued 'eligibility confirmation numbers' to successful applicants, who could then proceed to install their solar PV panels with the confidence that they were eligible to receive a rebate.

DELWP's briefing to the minister on these hidden installations noted that although SusVic had a requirement for applicants to apply for and gain eligibility confirmation before installing solar PV panels, it 'did not take any action to ensure retailers or applicants complied with this requirement'.

SusVic advised us that it undertook a media campaign to encourage retailers and applicants to comply with the two-step approval process. It also advised that as the

government had instructed it to deliver the program as soon as possible, the 'cash-back' method for rebate delivery was the most appropriate and SusVic had little time to appropriately plan for and implement controls to address associated risks.

SusVic told us that the rebate process could have been more thoroughly explored in the program's design phase so that mitigation measures could have been put in place to ensure applicants complied with its two-stage application process.

To address the issue of hidden installations, the minister approved funding for an additional 2 400 rebates through reprioritised SHW system rebates that were underspent in 2018–19.

From 1 July 2019, Solar Vic revised the application and payment processes to ensure installations do not occur before it approves the application. Instead of paying the rebate to pre-confirmed eligible applicants (similar to a cash-back scheme), Solar Vic now pays the rebate to retailers after the installations are certified by LEIs.

This new arrangement closed the loop on installations occurring prior to the confirmation of applicants' eligibility for rebates. It also shifted the risk of non-payment of rebates from households to retailers.

Other program risks

In November 2020, Solar Vic commissioned a corruption and risk review, which identified red flags that could be indicative of fraud events. Solar Vic advised that it is working through the findings of the review to determine whether there had, in fact, been breaches. It has also started to implement its recommendations.

3.4 Consumer protection

SusVic commissioned a report on consumer protection in December 2018. It notes that the current consumer regulatory framework does not sufficiently cover solar system purchases with respect to:

- protecting consumers from unsolicited sales activities such as door-to-door pitches and telemarketing
- requiring a uniform or proforma template for retailers' quotes to allow consumers to better assess and compare the systems being offered
- providing for independent external dispute resolution (in contrast to energy and water consumers, who can use the services of the Energy and Water Ombudsman Victoria)
- protecting consumers against retailers that cease operations during the five-year warranty period
- providing for the enforcement of the CEC's Code of Conduct, as voluntary industry codes are challenging to rigorously administer and enforce.

DPC's 2018 Design and Options Report also flagged the need for regulatory reform to provide new consumer protections for renewable energy systems through the Energy and Water Ombudsman Victoria, as well as through the revision of the Victorian Energy Retail Code. To date, there has been no progress on these identified reforms.

ICRG meeting records show that Solar Vic's industry partners strongly support efforts to improve consumer protections in the industry, particularly in relation to curbing aggressive sales techniques and developing new rules for retailers.

Solar Vic advised that it is currently drafting recommendations to prohibit door-to-door sales of solar systems.

Consumer complaints

A June 2020 DELWP internal audit found that Solar Vic:

- did not have a complete view of all complaints related to the program as only complaints received via a dedicated complaints email are captured as such
- had not finalised its complaints management policy to define, triage, prioritise and guide its complaints management processes.

Solar Vic finalised its complaints handling policy in July 2020. The revised policy provides better guidance to staff on how to triage and prioritise complaints and sets out expectations on resolution timeframes.

Solar Vic now also centrally records complaints from various sources including emails, phone calls, letters, and referrals from CAV and the Energy and Water Ombudsman Victoria in its customer relationship management (CRM) system. Ministers and members of parliament send any complaints they receive from their constituents about the program to Solar Vic. Following DELWP procedures, Solar Vic records ministerial correspondence in DELWP's records management system and not in Solar Vic's CRM system. However, these are included in Solar Vic's monthly reports on consumer complaints.

Solar Vic provides monthly reports to its PCB on the number of complaints received, emerging themes relative to the issues raised, and its responses to resolve and close complaints.

4. Evaluation and reporting

Conclusion

Solar Vic is not yet able to report to what extent it has reduced consumers' power bills and carbon emissions through this $1.3 billion investment.

This is because, despite the program starting in August 2018, neither DPC nor SusVic developed a monitoring and evaluation framework. Solar Vic completed its MEL framework in December 2020 and finalised its evaluation methodologies in April 2021.

Solar Vic conducted a pilot study of 129 consumers that suggests the program saves consumers an average of $1 073 annually in power bills. However, the study cautions against extrapolating this result as more work is required on its methodology to better approximate savings.

Solar Vic is meeting targets for the delivery of solar PV panel rebates and the timeliness of application processing.

This chapter discusses:

- Program evaluation
- Program reporting
- Application processing times

4.1 Program evaluation

A monitoring and evaluation framework for a program or project sets out:

- what success looks like
- relevant datasets and methods to collect and manage data
- reporting arrangements to inform program implementers and decision-makers about whether and to what extent the program is achieving intended outcomes
- how monitoring and evaluation results feed into continued program enhancements.

No early program monitoring and evaluation framework

Neither DPC nor SusVic developed a monitoring and evaluation framework during the first year of program delivery. SusVic advised that this was because it was focusing on rolling out the rebates and transitioning the program to DELWP for Phase 2.

Solar Vic also did not have a monitoring and evaluation framework in place when it started Phase 2 of the program in July 2019. It recognised this gap and engaged an external consultant to develop one in May 2020.

MEL framework

Solar Vic approved the final version of its MEL framework in December 2020. The framework sets out its evaluation approach at a high level.

The MEL framework identified the program's immediate, intermediate and end-of-program outcomes. These include the intended program outcomes—as announced in August 2018—of:

- 5 000 new jobs in the solar industry
- annual average customer electricity bill savings of $890 for solar PV panels
- a reduction of Victoria's carbon emissions by 4 million tonnes a year
- generation of 12.5 per cent of Victoria's 40 per cent target for renewable energy by 2025.

Solar Vic's MEL framework said that it would review and confirm the continued relevance of these measures by the first quarter of 2021.

On 28 April 2021, Solar Vic finalised its evaluation plans, expressed in four divisional plans, including methodologies for assessing program objectives related to job creation, consumer savings, carbon reduction and renewable energy generation.

Jobs creation

In April 2021, Solar Vic adopted CEC's methodology to estimate jobs created by the program. Using this method, Solar Vic estimates that the program created 4 711 jobs. CEC notes that this method is consistent with the standard techniques used to estimate renewable energy employment internationally and by the Australian Bureau of Statistics.

Consumer bill savings

In March 2021, Solar Vic undertook a pilot study to determine consumer bill savings. From a sample of 129 program participants, the analysis suggests an average annual saving of $1 073 in electricity bills. Solar Vic, however, did not use actual consumer power bills to calculate the savings. Rather, it used approximated reference retail electricity prices and estimated solar generation, assuming 95 per cent of solar panels are north-facing, among other assumptions.

The study's assessment report cautions that:

- the wide range of results approximated for individual sites suggests that customers should be made aware that their actual savings could be far from the average
- more work is required to refine the methodology to better approximate actual savings of a larger sample of program consumers.

Carbon emission reduction

The December 2020 MEL framework noted the need to review the annual 4 million tonnes target for continued relevance.

Solar Vic's April 2021 review confirms that it needs to differentiate between the program's contribution to the National Electricity Market and Victorian emissions reduction by reporting these separately.

Renewable energy generation

DELWP has reported that it has met the department's renewable energy generation target in 2019–20, as shown in Figure 4D. The program's outputs contribute to the department's achievement of this target.

4.2 Program reporting

Output reporting

To date, Solar Vic's program reporting has focused primarily on outputs (the services it delivers). From January 2019, Solar Vic reports to the minister monthly on key metrics including total rebates paid and the number of applications and systems installed. These reports provide useful program implementation information to the senior leadership team.

Solar PV panels

From available Solar Vic data, we calculated the number of approved applications and completed installations for each rebate type to compare with Solar Vic's allocated targets.

The program allocates 650 000 solar PV panel rebates to owner-occupiers and 50 000 to rental properties.

While Solar Vic has overachieved its targets for solar PV panels for owner-occupiers, it fell short of meeting the target for solar PV systems for rental homes. Figure 4A shows the breakdown of rebate allocations for solar PV panels for owner-occupiers compared to solar PV panels for rental homes.

FIGURE 4A: **Number of approved rebates and installations of solar PV panels for owner-occupiers and rental homes**

Rebate type	Allocated	Revised allocation	Application approved	Installations completed
Phase 1 (2018–19)				
Owner-occupiers	24 000	33 750	36 704	36 704
Rental homes	N/A*	N/A*	N/A*	N/A*
Phase 2 (2019–20)				
Owner-occupiers	40 000	63 420	53 156	47 631
Rental homes	2 000	2 000	506	444

Note: *Solar PV rental-homes program and solar battery rebates started on 1 July 2019.
Source: VAGO, based on Solar Vic documentation and data as at 26 February 2021.

Applications for Phase 1 (2018–19) solar PV panels (owner-occupier) ended on 30 June 2019 when DELWP took over program delivery and started delivering Phase 2. November 2019 PCB meeting minutes noted that while processing of Phase 1 applications continued in 2019–20, they were finalised by 31 October 2019.

However, Solar Vic was still approving Phase 1 applications in 2020. Solar Vic's reports to the minister in August and November 2020 show that the number of applications approved and installed for Phase 1 increased slightly—by two and eight, respectively. In total, Solar Vic approved over 100 Phase 1 rebate applications after the Phase 1 cut-off date.

Solar Vic explained that it continues to process Phase 1 rebate applications (for $2 225 rather than the current $1 850) if the applicant can show that they:

- submitted a rebate application before 30 June 2019
- met the program's eligibility criteria in place from 19 August 2018 to 30 June 2019, and could either:
  - prove a previous processing error on the part of Solar Vic, or
  - show extenuating circumstances.

Solar Vic counts these late approvals as Phase 1 rebate allocations for reporting purposes regardless of when the approval process and installations were completed.

SHW systems

As discussed in Chapter 3, Solar Vic did not meet the targeted allocation of 12 000 SHW system rebates for 2018–19 and 2019–20. Figure 4B shows the breakdown of approved rebates and installations for SHW systems.

FIGURE 4B: **Number of approved rebates and installations for SHW systems**

	Allocated	Revised allocation	Applications approved	Installations completed
Phase 1 (2018–19)	6 000	3 600	311	311
Phase 2 (2019–20)	6 000	6 000	595	382

Source: VAGO, based on Solar Vic's documentation and data as at 26 February 2021.

Solar batteries

As Figure 4C shows, the number of approved applications for solar batteries for 2019–20 is below the 1 000 rebates allocated for the year. While the removal of the postcode limitation discussed in Chapter 3 resulted in more applications from April 2020, Solar Vic approved 935 applications, or 65 short of the 1 000 allocated rebates, by the end of June 2020.

FIGURE 4C: **Number of approved rebates and installations for batteries**

	Allocated	Applications approved	Installations completed
2019–20	1 000	935	753
2020–21	5 000	1 289	933

Source: VAGO, based on Solar Vic's documentation and data as at 26 February 2021.

4.3 Application processing times

DELWP reports on the program's output performance in its BP3 reporting.

Figure 4D shows that in 2019–20, Solar Vic processed rebate applications within two days or well within the identified target of five weeks. It also took Solar Vic less than two weeks to process eligibility requirements, or quicker than half the targeted time of four weeks.

Figure 4D also shows that DELWP reported meeting five (or 56 per cent) of its nine BP3 measures.

FIGURE 4D: **DELWP's BP3 reporting in relation to the program**

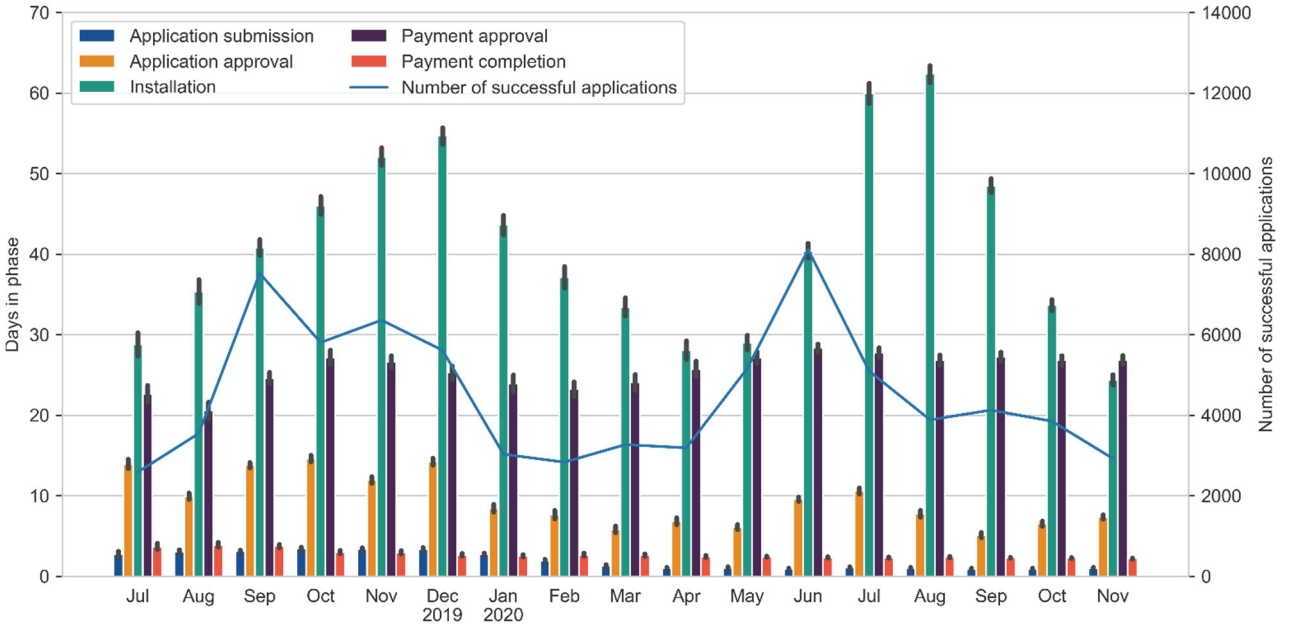
	Performance measure	BP3 dimension	Financial year	Actual	Target	Met target?
1	Average number of weeks to process completed eligibility applications	Timeliness	2019–20	1.6 weeks	4 weeks	
2	Average number of weeks to process completed rebate applications	Timeliness	2019–20	0.2 week	5 weeks	
3	Eligible applications for home battery systems approved	Quantity	2019–20	970	1 000	
4	Eligible applications for SHW systems approved	Quantity	2019–20	1 107	6 000	
5	Eligible applications for solar PV systems approved	Quantity	2019–20	54 675	42 000	
6	Rebated installations (that is, solar PV, hot-water systems and batteries) audited by Solar Vic	Quality	2019–20	3.7 per cent	5 per cent	
7	Total output cost	Cost	2019–20	$137.4 million	$139.4 million	
8	Certificates surrendered for greenhouse gas emissions reduction under the Victorian Energy Efficiency Target	Quantity	2019–20	6.1 million	6.3 million	
9	New renewable electricity generation capacity under the Victorian Renewable Energy Target 2017 Auction	Quantity	2019–20	100 megawatts	100 megawatts	

Note: Measures 1–7 are direct measurements for the program. Measure 8 and 9 relate to the broader DELWP energy group reporting but the program's outputs contribute to the BP3 reporting.

Source: VAGO, based on DELWP BP3 reporting 2020.

Figure 4E shows a breakdown of solar PV panel and battery rebate process times for the five phases of an application.

FIGURE 4E: **Rebate process time for solar PV panels and battery**



Source: VAGO, based on Solar Vic data from 1 July 2019 to 26 February 2021.

The processing time data shows that, from application submission to approval:

- 50 per cent of applications took at least six days
- 10 per cent of applications took at least 24 days
- 5 per cent of applications took at least 34 days.

There was also a spike in the installation phase (Phase 3, green column in Figure 4E) from September 2019 to January 2020. This corresponds to the spike in approved applications in September 2019. Another significant time increase in the approved-to-installed phase occurred between June and September 2020. This was due to installers not being able to complete work during the second COVID-19 pandemic lockdown in Victoria.

From 1 July 2019, Solar Vic required identity verification standard Level of Assurance (LoA) 3 for its rebate application process. LoA 3 identity verification requires applicants to provide a live video or still image of themselves to compare against their photo identity documents.

Following its re-assessment of the program's LoA requirements, Solar Vic moved from LoA 3 to LoA 2 assurance level for its application process for solar PV panel and battery applications in March 2020. This change allowed the use of the national Document Verification Service to confirm an applicant's identity and helped decrease the application time from submission to approval from over 10 days to three days.

As Solar Vic processes SHW system applications manually, the application process is longer than that for solar PV panels and batteries. Available data shows the number

of days it takes Solar Vic to start a manual SHW application and coordinate with the applicant to get it ready for submission as follows:

- at least eight days for 50 per cent of applications
- at least 52 days for 10 per cent of applications
- at least 73 days for 5 per cent of applications.

APPENDIX A

Submissions and comments

We have consulted with Solar Vic (DELWP), SusVic and DPC, and we considered their views when reaching our audit conclusions. As required by the *Audit Act 1994*, we gave a draft copy of this report, or relevant extracts, to those agencies and asked for their submissions and comments.

Responsibility for the accuracy, fairness and balance of those comments rests solely with the agency head.

Responses were received as follows:

Response provided by the Secretary, DELWP

Department of Environment, Land, Water and Planning

PO Box 500, East Melbourne,
Victoria 8002 Australia
delwp.vic.gov.au

Mr Andrew Greaves
Auditor-General
Victorian Auditor-General's Office
Level 31, 35 Collins Street
MELBOURNE VIC 3000

Ref: SEC015102

Dear Mr Greaves

PROPOSED PERFORMANCE AUDIT REPORT DELIVERNG THE SOLAR HOMES PROGRAM

Thank you for your letter of 27 May 2021 providing the Department of Environment, Land, Water and Planning (DELWP) with an opportunity to comment on the proposed Performance Audit Report *Delivering the Solar Homes Program*.

DELWP appreciates the work of your office in conducting this audit, and I am pleased to confirm acceptance of all recommendations directed to DELWP. Our detailed response to each of the recommendations is enclosed.

The Solar Homes Program is helping Victorians take control of their energy bills, tackle climate change, access affordable energy, and build a cleaner, renewable energy future. The program is well advanced to support 700,000 Victorian households with rebates for solar photovoltaic (PV) systems, 18,500 battery storage systems and 60,000 solar hot water systems across the state, over its 10-year lifespan.

After almost three years, more than 150,000 Victorian households are benefitting from more affordable, clean energy through the support of the Solar Homes Program. More than $274 million in rebates has been paid to date and $127 million in interest-free loans to support the installation of solar PV panels.

The program is contributing strongly to the objectives originally set when the Victorian Government announced the Solar Homes Program in August 2018. Solar Victoria recently publicly reported the following outcomes:

- support for new jobs in the solar industry (1,097 in 2018-19; 2,530 in 2019-20; 2,158 in 2020 to March 2021);
- savings of $1,073 in average annual household electricity bills from solar PV panels (compared to $890 estimated at program launch);
- reduction of 750,000 tonnes of carbon emissions from the National Electricity Market since 2018; and
- installation of 785 megawatts of solar PV capacity since 2018, contributing to the state's renewable energy target of 40 per cent by 2025.

Victorian businesses are also benefiting. Victoria has the highest rate of renewable energy job growth in the country, with 30 per cent of all renewable energy jobs based in Victoria, and 56 per cent of those in solar.

Safety and quality are paramount, and the Solar Homes Program Assurance Framework comprises the most robust set of safety and compliance controls for participating retailers and installers in Australia. Solar Victoria has taken active steps to enforce these requirements including taking action to remove those that fall short of its high standards. The framework is underpinned by partnerships with Victoria's safety regulators, engagement with industry schemes, a risk-based audit program,

stringent participation requirements and targeted industry training programs. Victoria is the only Australian state or territory to adopt a whole-of-government approach to lifting safety, compliance and quality standards in the solar industry for retailers, installers and Licensed Electrical Inspectors.

This assurance approach has seen safety standards in Victoria considerably improved since the program commenced and now substantially better than the national average. Solar Victoria's risk-based audit program is carefully targeted and has audited 5,450 systems to date. We continue to audit five per cent of rebated installations and the rate of serious concerns has reduced by 67 per cent. Our most recent audit data shows that less than 1 per cent of systems are found to be unsafe and we are working to reduce this number further. Any such systems are immediately disconnected, and appropriate follow up action is taken.

Victorian Government programs supporting renewable energy are contributing to cheaper home energy bills for Victorians. Wholesale electricity costs in Victoria have decreased since 2018, as have retail costs and are the second lowest in the country. The Australian Energy Market Commission is forecasting that energy prices in Victoria will decrease by 13.2 per cent in 2021-22, noting the contribution of "increased solar and wind power driving down wholesale prices".

The Victorian Government is undertaking investment and policy reform to support the integration of solar. We will continue to work closely with industry and regulatory bodies to prudently support a trusted and thriving sector whose innovations are benefiting all Victorians. The Victorian Government's record $1.6 billion investment in renewable energy and energy efficiency initiatives announced in November 2020, the *Grid of the Future* program, and Solar Victoria's, recently released, *Technology Guidelines* – all of which have been introduced since the program commenced - pave the way for technology, regulatory and program settings that will enable integration of solar and distributed energy into the existing grid.

While distribution network service providers around the world are adapting their services and infrastructure response to accommodate distributed energy resources like solar, Victoria's long-term initiative in the Solar Homes program has allowed providers to plan more efficiently for strategic approaches to enable solar integration. Notwithstanding distribution network investments in solar enablement, during the upcoming regulatory period (2021-2026) four out of five Victorian electricity distribution businesses have forecast bill savings for consumers through lower network tariffs.

Should you require any further information in relation to the DELWP's response, please contact Paul Corkill, Director Risk, Assurance and Standards at Solar Victoria.

Yours sincerely

John Bradley
Secretary

10 June 2021

Encl.

SEC015102 Page 2

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Response provided by the Secretary, DELWP—*continued*

Solar Victoria, Department of Environment, Land Water and Planning action plan to address recommendations from DELIVERING THE SOLAR HOMES PROGRAM

No	VAGO recommendation We recommend that DELWP:	Action	Completion date
1	develops an updated business case, utilising guidance in the Department of Treasury's Investment Lifecycle and High Value High Risk Guidelines: Stage 1–Business Case and, in so doing, provides full and comprehensive advice to government on a reasonable array of options, including 'doing nothing' as well as exit strategy options and analysis of the continuing merits of government intervention.	Accepted Whilst the department prepared a short form business case it will prepare a long form business case that complies with DTF's Investment Lifecycle and High Value High Risk Guidelines. Solar Victoria has commenced a program of work to develop this for government consideration. This activity will include advice on future options for the Solar Homes Program. Any resulting program changes will be communicated as part of the 2022-23 State Budget cycle.	May 2022
2	includes information in its public-facing communications about distributed network service providers' export constraints so prospective program applicants are made fully aware of any limits on their ability to earn revenue from their unused solar-generated electricity and self-consume electricity generated by their solar PV panels when grid conditions are not optimal.	Accepted Solar Victoria has strengthened its existing public facing communications and guidance for prospective customers on requirements for distributed network service provider pre-approval for grid connected solar systems. This information has been circulated via buyers' guides on the Solar Victoria website and in its industry and customer newsletters, which are continuously updated. Furthermore, Solar Victoria has strengthened requirements in the application process to ensure consumers are informed of potential grid constraints before making purchasing decisions. This information will continue to be included as part of regular marketing and communications activity and Solar Victoria will look for additional opportunities to raise awareness of these requirements.	Action completed/ongoing

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Response provided by the Secretary, DELWP—*continued*

3	resolve gaps in its assurance controls to enable it to ensure compliance with program rules and procedures. This should include, but not be limited to, the requirement for retailers to obtain solar PV panel pre-approval for grid connection, eligibility requirements, and the gaps identified in the November 2020 internal audit report on the Solar Homes program's assurance framework.	Accepted Solar Victoria's assurance controls are documented in the Assurance Map which was introduced in November 2020. Solar Victoria has since updated this map on 31 March 2021 to address opportunities for improvement identified through the department's internal audit process. Solar Victoria has also introduced additional controls requiring retailers to confirm that grid connection approval has been obtained for their customer before any installation. Solar Victoria works with the Clean Energy Council to address retailer compliance with the strict requirements of the Approved Solar Retailer Code requiring retailers to provide this advice to customers.	Action completed
4	continues to work with relevant regulators to ensure that identified gaps in consumer protection for solar energy products are addressed.	Accepted Solar Victoria has established trusted partnerships and information sharing arrangements with relevant regulatory bodies. Solar Victoria's Enforcement Committee and Regulatory Taskforce has a robust governance structure and continues to maintain a strong focus on consumer protections, among other things. Solar Victoria also announced a ban on door-to-door sales on 25 May 2021, which comes into effect from 1 September 2021, allowing time for industry to adjust to the policy. Solar Victoria will consider additional policy options for strengthening consumer protections.	30 December 2021
5	reviews and confirms the soundness of its recently determined evaluation methodologies to provide relevant reporting on the program's intended outcomes.	Accepted Solar Victoria has established evaluation methodologies for the Solar Homes program and is committed to continuous improvement of its evaluation methodologies and approved targets within the Monitoring Evaluation and Learning Framework (MELF). Solar Victoria will review and confirm its evaluation methodologies and program targets as part of the annual MELF review in 2021.	30 December 2021

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Response provided by the Chief Executive Officer, SusVic

Sustainability Victoria

3 June 2021

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Andrew Greaves
Auditor-General
Victorian Auditor-General's Office
Level 24, 35 Collins Street
Melbourne VIC 3000

Dear Mr Greaves

Delivering the Solar Homes Program – Proposed Report

Thank you for sharing the Proposed Report with Sustainability Victoria (SV).

I note the findings of the Proposed Report closely align with the discussion between SV's Chief Operating Officer, Matt Genever and the VAGO audit team which took place on 4 May 2021. Sustainability Victoria is committed to continuous improvement in program and service delivery, to ensure value for money in the expenditure of public moneys for all Victorians. We have now reviewed the Proposed Report, noting it offers SV a salutary opportunity to reflect on past practices as we strive to improve our performance.

Given there are no recommendations that relate to SV in the Proposed Report, we do not wish to suggest any further changes at this stage.

On behalf of Sustainability Victoria, I look forward to receiving the Final Report.

Yours sincerely

Claire Ferres Miles
Chief Executive Officer

VICTORIA State Government

APPENDIX B

Acronyms and abbreviations

Acronyms

CAV	Consumer Affairs Victoria
CEC	Clean Energy Council
CES	certificate of electrical safety
CRM	customer relationship management
DELWP	Department of Environment, Land, Water and Planning
DER	distributed energy resources
DET	Department of Education and Training
DNSP	distributed network service provider
DPC	Department of Premier and Cabinet
DTF	Department of Treasury and Finance
ESV	Energy Safe Victoria
FiT	feed–in tariff
ICRG	Industry and Consumer Reference Group
LEI	licensed electrical inspector
LoA	Level of Assurance
MEL	monitoring, evaluation and learning
NEL	National Electricity Law
NER	National Electricity Rules
PCB	program control board
PV	photovoltaic
SHW	solar hot-water
SRES	Small-scale Renewable Energy Scheme
VAGO	Victorian Auditor-General's Office
VBA	Victorian Building Authority

Abbreviations

BP3	*Budget Paper No. 3*
Code of Conduct	*Solar Retailer Code of Conduct*
COVID-19	coronavirus
Design and Options Report	Solar Homes Program Design and Options Report
SA Act	*National Electricity (SA) Act* 1996
Solar Vic	Solar Victoria
SusVic	Sustainability Victoria
the Framework	Solar Vic's September 2020 Safety and Quality Assurance Framework
the minister	Minister for Energy, Environment and Climate Change From December 2018, also Minister for Solar Homes.
the program	Solar Homes Program
2019–20 business case	2019–20 Solar Homes
2020–21 business case	2020–21 Solar Homes: Growing Victoria's Solar Industry
22515VIC	Working Safely in the Solar Industry training course

APPENDIX C

Scope of this audit

Who we audited	What we assessed	What the audit cost
DELWP	We assessed whether the Solar Homes Program is enabling Victorian households to control their power bills and reduce carbon emissions: • whether the program is enabling Victorians to access solar panels, batteries and hot-water systems. • whether the program delivery is facilitating the achievement of intended outcomes.	The cost of this audit was $870 000.

Our methods

As part of the audit we:

- reviewed legislative, policy, plans and strategic documents
- reviewed relevant agencies' internal and publicly available documentation
- reviewed publicly available documentation on solar energy and solar power
- assessed relevant data, data management systems and tools
- assessed Solar Vic's activities to plan, implement and evaluate the program
- engaged with DPC and SusVic staff and executive officers relative to their roles in planning the program design and implementing program Phase 1
- interviewed agencies' staff and executive officers, stakeholders and subject-matter experts.

We conducted our audit in accordance with the *Audit Act 1994* and ASAE 3500 Performance Engagements. We complied with the independence and other relevant ethical requirements related to assurance engagements.

APPENDIX D

Program products and eligibility criteria

The program comprises six separate initiatives. These initiatives, and their eligibility criteria are outlined below.

FIGURE D1: **Program initiatives and eligibility criteria**

Initiative	Eligibility criteria
Solar PV panels	• Owner-occupier of the property • Combined household taxable income of less than $180 000 per year • Existing property valued at under $3 million • Does not have an existing solar PV system.
Solar panels for rental properties	• Combined household income of under $180 000 per year • Property is valued at under $3 million • Does not already have solar panels • No prior participation in the program for that address • Signed Solar Homes Landlord–Tenant Agreement (by landlord and all renters) • Property currently tenanted with a rental agreement in place.
Solar hot-water system rebate	• Owner-occupier of the property • Combined household taxable income of less than $180 000 per annum • Existing property valued at under $3 million • Hot-water system to be replaced at is least three years old from date of purchase • Has not received a solar PV panel or a battery rebate under the program.
Solar battery	• Owner-occupier of the property • Combined household taxable income of less than $180 000 per annum • Existing property valued at under $3 million • Property address has not previously taken part in the program

	• Property already has solar five kilowatt or greater PV panels but no existing energy storage system • Pre-approval from a DNSP to safely connect battery to the grid • Agreement to receive information from DNSP about battery trials to maximise battery value • Agreement to receive free safety inspection and/or audit under Solar Vic's audit program, if selected.
Solar for community housing	• A not-for-profit organisation that provides affordable rental housing to low-income households • Be able to demonstrate the full value (100 per cent) of energy savings achieved by installing solar panels will be passed onto tenants • The properties under consideration are owned or managed by the community housing organisation.

Source: Solar Vic website as at November 2020.

Additional program product information

Solar PV panel rebate

Eligible households can claim a 50 per cent discount on the cost of a solar PV system, up to a maximum of $1 850. The rebate is available for homeowners and rental properties.

Early adopters who installed their systems prior to 1 November 2009 are eligible to replace or expand their existing system.

To further reduce solar PV installation costs, householders can apply for an interest-free loan for an amount equivalent to their rebate amount. The loan must be paid within four years.

Solar rebates for rental properties

The Solar for Rentals initiative offers eligible landlords a 50 per cent rebate of up to $1 850 for the installation of solar PV panels. The landlord is responsible for the remaining cost.

Landlords may receive a rebate for a maximum of two rental properties each financial year, subject to a Solar Homes Landlord–Tenant Agreement being signed.

Eligible landlords can also apply for an interest-free loan of up to $1 850 to further reduce the upfront cost of the solar panel system. There are two options for loan repayments:

- A landlord can make the full monthly loan repayment of $38.54.
- The landlord and renter can agree to a co-contribution model where the renter contributes up to 50 per cent of the monthly repayment. The maximum amount that can be contributed by the renter each month is $19.27.

Renters who agree to co-contribute do so for the four-year life of the loan or until the renter vacates the property, whichever is earlier.

SHW rebate

The program is supporting up to 6 000 eligible households to install a new or replacement hot-water system by providing a point-of-sale discount of up to a maximum of $1 000.

Battery rebate

Solar battery rebates were introduced from 1 July 2019. In November 2020, the government announced an increase in the overall number of batteries available across the 10-year program from 10 000 to 18 500.

Eligible households can access a point-of-sale discount of up to 50 per cent, up to a maximum of $4 174 to install a solar battery.

Interest-free loans are not available under the battery initiative.

Solar Vic is encouraging the aggregation of batteries funded under the program to support the expansion and reach of the benefits of battery storage. Aggregation is the process of combining small-scale distributed energy technologies, such as solar or storage, to increase the overall capacity and impact of technology for the household and the wider community.

Solar for community housing

Solar rebates were introduced to the community housing sector from 1 July 2019.

Not-for-profit community housing providers are eligible to apply for solar panel rebates on behalf of their tenants.

Solar Vic will fund up to $1 850 or a maximum of 50 per cent of the cost of the solar system per tenancy.

APPENDIX E

Program requirements

Solar Vic specifies mandatory and recommended requirements for retailers and installers participating in the program. These are outlined in the program's *Notice to Market* and the approved products lists.

Notice to Market

The *Notice to Market* provides the solar energy industry with a clear overview of the rules and expectations for participation in the program.

Participants must comply with the requirements for rebates to apply to their solar and battery systems. Where a participant no longer meets mandatory requirements, they may be suspended or cancelled from the program.

Recommended requirements are optional and do not affect eligibility to the program. However, they signal to industry criteria that are likely to become mandatory in the future.

The *Notice to Market* is updated regularly to reflect new expectations, with the latest being published in November 2020.

Approved products

To ensure the safety, performance and reliability of solar energy systems installed under the program, they must be listed on Solar Vic's approved products lists to qualify for a rebate.

The CEC ensures solar PV products meet the safety standards set by it, ESV and other relevant authorities.

Figure E1 outlines approved product requirements.

FIGURE E1: **Approved product requirements**

Initiative	Approved products
Solar PV panels	Solar Vic maintains a list of approved modules that meet the requirements to participate in the program, as specified in Solar Vic's *Notice to Market*.
Inverters	CEC maintains a list of approved inverters that meet Australian standards for use in the design and installation of solar PV panels. The program requires the installation of inverters that meet Australian standards and also have the power quality functions volt-watt and volt-var.
SHW systems	The program requires the installation of an approved product from the Clean Energy Regulator's Register of approved solar providers and the Essential Services Commission's Register of Products.
Solar batteries	The program requires the installation of a product from Solar Vic's approved battery products list.

Source: Solar Vic website as at November 2020.

APPENDIX F

Changes in audit rating categories

FIGURE F1: **Safety audit program's changes in audit categories**

June 2019	Revised—Oct 2019	Revised—Sep 2020
1. Serious non-compliance—Unsafe: A possible safety hazard that poses an imminent risk of damage to property or persons. The system has had to be shut down.	1. Unsafe: A safety hazard that poses an imminent risk of damage to property or persons. The system has had to be shut down.	1. Unsafe: The system has a safety hazard that may pose an imminent risk to a person or property. The system has been shut down or rendered safe. The solar retailer is required to arrange for rectification and re-certification of the installation work.
2. Major non-compliance—Needs rectification: The system has failed to meet key clauses in the standards/guidelines for installation, and though does not pose an imminent safety risk is a high risk and may lead to premature equipment failure or other issues. This requires priority rectification.	2. Needs rectification: The system does not meet key clauses in the standards/guidelines for installation, and though does not pose an imminent safety risk is at high risk of becoming unsafe in the future. The system requires priority rectification.	2 .Operable—Improvements Required (Safety): The system does not pose an immediate risk but the installation work and or equipment need to be improved. The system does not meet key safety clauses in the standards and requirements for installation and may lead to premature equipment failure or other issues. The solar retailer is required to arrange for rectification of the installation work.
		2. Operable—Improvements Required (Quality): The system does not pose an immediate risk but the installation work and/or equipment need to be improved. The system does not meet key quality clauses in the standards and requirements for installation and may lead to premature equipment failure or other issues. The solar retailer is required to arrange for rectification of the installation work.
3. Medium non-compliance—Improvements identified: The system does not comply with standards and guidelines and poses a medium risk that may require improvement or modification.	3. Improvements identified, for information: The system does not pose a safety risk; however, was found to not comply with all standards and guidelines. Improvements are identified and are provided as information and guidance for installers and customers.	3. Adequate—The quality of work has been carried out in accordance with program requirements as the system complies with the majority of standards and requirements for installation. No safety or significant performance issues have been identified. No improvement work is required. Inconsistencies with standards and guidelines are provided as information and for guidance of installers.

June 2019	Revised—Oct 2019	Revised—Sep 2020
4. Minor non-compliance—Adequate: The system does not comply with all standards and guidelines and poses a low risk.	4. Adequate: No evidence of material non-compliance with standards or guidelines was found, the system is installed satisfactorily.	
5. No non-compliance—Complies: The system complies with standards and guidelines and poses negligible risk.		4. Industry best practice—The quality of work has been carried out in accordance with program requirements. The system complies with relevant standards and requirements for installation. No safety or performance issues have been identified. No improvement work is required.

Source: VAGO, from Solar Vic documents.

Auditor-General's reports tabled during 2020–21

Report title	
Rehabilitating Mines (2020–21: 1)	August 2020
Management of the Student Resource Package (2020–21: 2)	August 2020
Victoria's Homelessness Response (2020–21: 3)	September 2020
Reducing Bushfire Risks (2020–21: 4)	October 2020
Follow up of Managing the Level Crossing Removal Project (2020–21: 5)	October 2020
Early Years Management in Victorian Sessional Kindergartens (2020–21: 6)	October 2020
Accessibility of Tram Services (2020–21: 7)	October 2020
Accessing Emergency Funding to Meet Urgent Claims (2020–21: 8)	November 2020
Auditor-General's Report on the Annual Financial Report of the State of Victoria: 2019–20 (2020–21: 9)	November 2020
Sexual Harassment in Local Government (2020–21: 10)	December 2020
Systems and Support for Principal Performance (2020–21: 11)	December 2020
Grants to the Migrant Workers Centre (2020–21: 12)	February 2021
Results of 2019–20 Audits: State-controlled Entities (2020–21: 13)	March 2021
Results of 2019–20 Audits: Local Government (2020–21: 14)	March 2021
Maintaining Local Roads (2020–21: 15)	March 2021
Service Victoria—Digital Delivery of Government Services (2020–21: 16)	March 2021
Reducing the Harm Caused by Gambling (2020–21: 17)	March 2021
Implementing a New Infringements Management System (2020–21: 18)	May 2021
Measuring and Reporting on Service Delivery (2020–21: 19)	May 2021
Delivering the Solar Homes Program (2020–21: 20)	June 2021
Responses to Performance Audit Recommendations: Annual Status Update (2020–21: 21)	June 2021

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