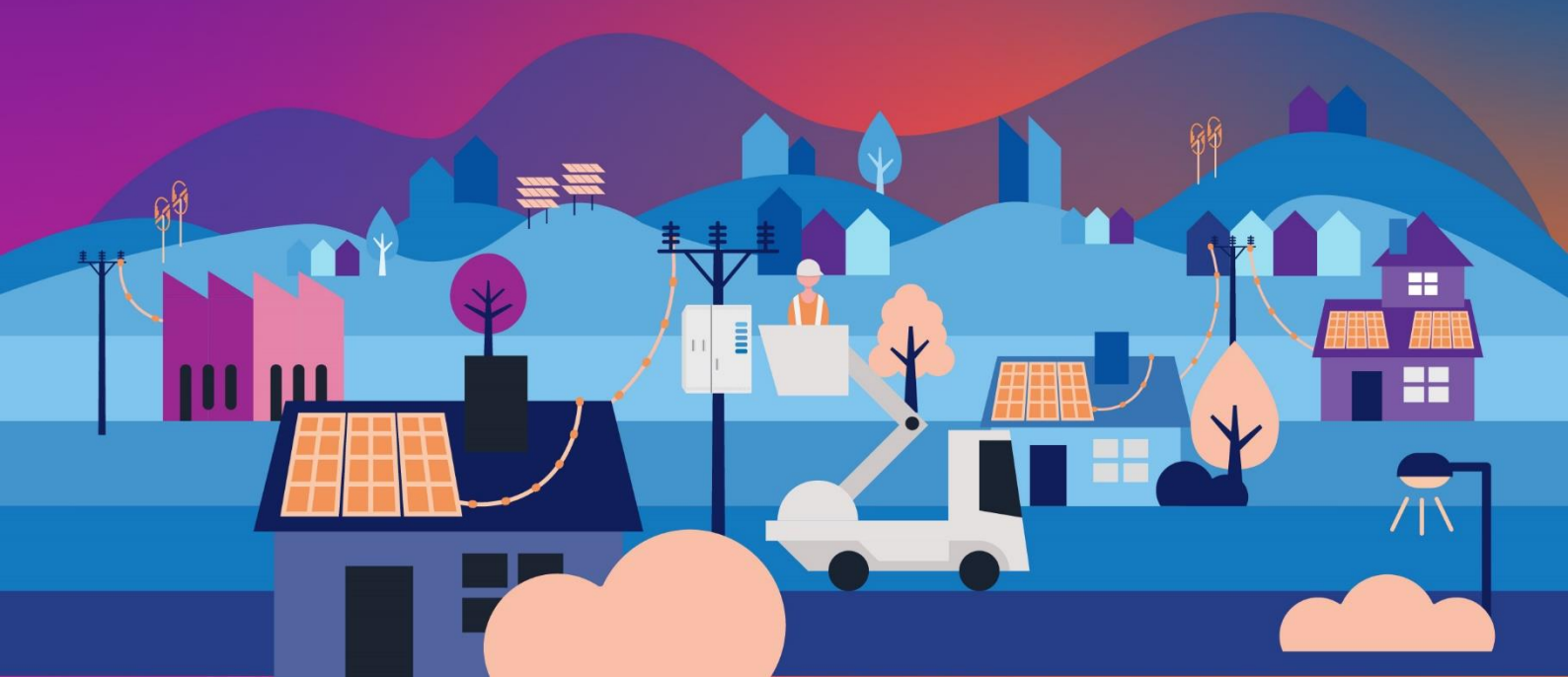




Victorian Emergency Backstop Mechanism (VEBM)

COST PASS-THROUGH APPLICATION

JUNE 2024



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1. Summary

Distributed solar PV (or rooftop solar) uptake in Victoria has been increasing for over a decade, including both in the number of systems and their average size. In Powercor, more than 24% of households have connected solar to our network.

Rooftop solar provides many benefits, including savings for customers and a reduction in Victoria's carbon emissions. However, high solar uptake can also lead to system security challenges such as minimum system load.¹

During December 2023, Victoria set a record low for minimum operational demand, increasing the likelihood of an emergency from 2024. In response to this, the Victorian Government introduced the Victorian Emergency Backstop Mechanism (VEBM) to manage minimum system load emergencies.

The VEBM mandates distribution network service providers (DNSP) to have the capability to remotely curtail exports or interrupt generation of all new, upgrading and replacement solar systems. This capability enables a 'last resort' mechanism to manage minimum system load emergencies to ensure system security while enabling a safe and continued uptake of solar.

The Victorian Government implemented the VEBM by gazetting two Ministerial Orders (Orders) to amend Powercor's distribution licence:

- stage one - large solar units: from 25 October 2023, applies to all new, upgrading and replacement solar systems greater than 200kVA
- stage two - smaller and medium solar units: from 1 July 2024, applies to all new, upgrading and replacement rooftop solar systems less than or equal to 200kVA.²

Meeting the new license amendments requires functionality that is beyond our existing system capability and requires uplifts to our systems, processes, and people. On average, Powercor receives over 20,000 new or upgraded solar connection requests per year, and solar connection forecasts are expected to continue to increase. For each new or upgrading solar connections, the VEBM necessitates the ability to:

- develop and schedule solar inverter controls, and ensure solar connection via network utility server, to enable customer exports under system normal, or to curtail exports or interrupt generation for an emergency backstop event
- ensure compliance of inverters connecting to the distribution network via an upgraded inverter commissioning process and ongoing monitoring
- establish customer and installer processes to enable an automated connection process
- establish processes to issue customer notifications, including for when their solar systems has been curtailed for testing or purposes other than the emergency direction
- establish new business procedures and update customer generation agreements.

The new system requirements necessary to meet the VEBM were not contemplated or funded through our regulatory allowances for the 2021–2026 regulatory period, but as discussed further in this application, meet the pass-through eligibility requirements set out in the National Electricity Rules (the Rules).

A summary of the total cost and proposed pass-through amount associated with delivering the VEBM is outlined in table 1.1.

¹ Minimum system load typically occurs when demand from the grid is low and the output from solar is high. In this scenario, the electricity grid can exceed safe operating parameters which has the potential to lead to local or state-wide blackouts.

² An extension until 1 October 2024 for stage 2 go-live is likely to be granted.

TABLE 1.1 PROPOSED POSITIVE PASS-THROUGH AMOUNT (\$ MILLION, 2021)

DESCRIPTION	FY22	FY23	F24	FY25	FY26	TOTAL
Proposed positive pass-through amount	-	1.1	9.6	6.8	2.2	19.7

Source: Powercor cost model, MOD.01 [commercial-in-confidence]

In total, the incremental bill impact of our pass-through application on the typical residential customer is approximately \$6.79 in FY26.

2. Victorian emergency backstop mechanism

The Victorian Government implemented the VEBM by gazetting two Ministerial Orders (Orders) to amend Powercor's distribution licence:

- stage one - large solar units: from 25 October 2023, the VEBM, applied to all new, upgraded and replacements solar PV embedded generating units with a capacity greater than 200kVA and no more than 30MVA (Large Solar Units). The Victorian Minister for Energy and Resources (Minister) made a Ministerial Order specifying a licence condition as necessary to give effect to the VEBM for large solar systems on 11 October 2023 (Stage One Order)³
- stage two - small and medium solar units: from 1 July 2024, the VEBM will apply to all new, upgraded or replacement solar PV embedded generating units with a capacity less than or equal to 200kVA (Small/Medium Solar Units). The Minister made a Ministerial Order specifying a licence condition as necessary to give effect to the VEBM for small/medium solar systems on 31 January 2024 (Stage Two Order).⁴

Stage one Ministerial Order

The Stage One Order imposes the following obligations on DNSPs in respect of Large Solar Units for which they are establishing or altering a connection to the distribution system, on or after 25 October 2023 (Relevant Large Solar Units):

- the DNSP must not establish or alter a connection with a Relevant Large Solar Unit to the DNSP's distribution system unless the DNSP is satisfied that the Relevant Large Solar Unit has the capability for the DNSP to remotely interrupt or curtail electricity generated by that Relevant Large Solar Unit
- the DNSP must, from 1 January 2024, be capable of remotely interrupting or curtailing electricity generated by the Relevant Large Solar Unit
- the DNSP must not remotely interrupt or curtail electricity generation from the Relevant Large Solar Unit, except in a specified set of circumstances (where the DNSP is directed to do so by AEMO, or a person lawfully directed by AEMO; where the DNSP is carrying out tests to satisfy itself that the DNSP is capable of remotely curtailing and interrupting electricity generation; and for any other matter agreed in writing between the DNSP and the unit owner)
- the DNSP must include terms in its relevant connection documentation to give effect to the terms of the Stage One Order, empower the DNSP to interrupt or curtail electricity in accordance with the Stage One Order, and set out the process by which the DNSP will inform a customer that electricity generation from the Relevant Large Solar Unit has been, or will be, remotely interrupted or curtailed
- the Stage One Order also imposes various notification requirements on DNSPs in relation to any remote interruption or curtailment of electricity generation from a Relevant Large Solar Unit.

Stage two Ministerial Order

The Stage Two Order applies in respect of Small/Medium Solar Units with the exception, until 1 January 2025, of certain Small/Medium Solar Units in embedded networks (Relevant Small/Medium Solar Units). The Stage Two Order imposes the following obligations on DNSPs:

- the DNSP must not establish or alter a connection with a Relevant Small/Medium Solar Unit to the DNSPs distribution system unless the DNSP is satisfied the Unit is 'emergency backstop enabled' as defined in

³ Ministerial Order Specifying Licence Condition in Victorian Government Gazette, No. S 542, 11 October 2023.

⁴ Ministerial Order Specifying Licence Condition in Victorian Government Gazette, No. S 31, 31 January 2024.

the Stage Two Order (Emergency Backstop Enabled).⁵ There are certain exceptions to this obligation, including:

- if the Relevant Small/Medium Solar Unit has a capacity less than 30kVA and cannot practicably be connected to the DNSP's utility server via the internet (with a requirement that certain terms be included in the relevant connection documentation where this exception applies)
 - if the Relevant Small/Medium Solar Unit has a capacity between 30kVA and 200kVA and the DNSP is satisfied that they are capable of remotely interrupting or curtailing electricity generation by the unit despite it not being Emergency Backstop Enabled
 - if the Relevant Small/Medium Solar Unit is in an embedded network and the DNSP is satisfied that they are capable of remotely interrupting or curtailing electricity generation by the unit despite it not being Emergency Backstop Enabled
 - the DNSP received an application to establish or alter the connection of the Relevant Small/Medium Solar Unit before 1 July 2024
- the DNSP must operate a utility server capable of remotely interrupting and curtailing electricity generation from the Relevant Small/Medium Solar Unit
 - the DNSP must implement a process to monitor whether Relevant Small/Medium Solar Units remain Emergency Backstop Enabled and whether the DNSP remains capable of remotely interrupting or curtailing electricity generation from the Solar Unit
 - the DNSP must not remotely interrupt or curtail electricity generation from the Relevant Small/Medium Solar Unit, except in a specified set of circumstances (where the DNSP is directed to do so by AEMO, or a person lawfully directed by AEMO; where the DNSP is carrying out tests to satisfy itself that the DNSP is capable of remotely curtailing and interrupting electricity generation; and for any other matter agreed in writing between the DNSP and the unit owner)
 - the DNSP must include terms in its relevant connection documentation to give effect to the terms of the Stage Two Order, empower the DNSP to interrupt or curtail electricity in accordance with the Stage Two Order, and set out the process by which the DNSP will inform a customer that electricity generation from the Relevant Large Solar Unit has been, or will be, remotely interrupted or curtailed.

The Stage Two Order also imposes:

- various notification requirements on DNSPs in relation to any remote interruption or curtailment of electricity generation from a Relevant Small/Medium Solar Unit
- requirements that DNSPs establish customer related procedures that set out processes customers or their agents must follow in relation to certain requirements of the Stage Two Order
- various reporting obligations.

⁵ Refer to Clause 3 of the Stage Two Order for the definition of 'emergency backstop enabled' and other relevant definitions.

3. Positive change event

The Rules include cost pass-through provisions that allow us to seek recovery of materially higher costs incurred in providing direct control services than we would have incurred but for the occurrence of a pass-through event. The pass-through events include those defined in the Rules, and include, but are not limited to, a 'service standard event' and a 'regulatory change event'.⁶

We consider that the VEBM, implemented through the Stage One and Two Orders, constitutes a 'service standard event' for the purposes of the Rules.⁷

3.1 Service standard event

Chapter 10 of the Rules defines a service standard event as a legislative or administrative act or decision that:

- has the effect of:
 - substantially varying, during the course of a regulatory control period, the manner in which a distributor is required to provide a direct control service;
 - imposing, removing or varying, during the course of a regulatory control period, minimum service standards applicable to direct control services; or
 - altering, during the course of a regulatory control period, the nature or scope of the direct control services provided by the distributor; and
- materially increases the costs to the service provider of providing the direct control services.

3.1.1 Legislative or administrative act or decision

The VEBM was implemented through the Stage One and Two Orders, which were made by the Minister under section 33AB(1)(a) and 33AB(1)(c) of the Electricity Industry Act 2000 (EIA). Section 33AB of the EIA empowers the Minister to specify licence conditions for Victorian electricity distributors.

As the AER has previously recognised, the act of varying a licence to introduce a new condition is an act or decision of an administrative character.⁸ The Minister's decision to vary our licence to introduce new conditions to give effect to the VEBM is, therefore, an administrative act or decision.

3.1.2 Effect of the act or decision

As the obligations imposed by the Stage One and Two Orders commenced on 25 October 2023 and 1 July 2024 respectively, they have occurred during the course of our current regulatory control period (2021–2026).

The Stage One and Two Orders have the effect of substantially varying the manner in which we are required to provide a direct control service. We are now subject to a number of new obligations, as described. In particular, we cannot establish or alter a connection between our distribution network and a Relevant Large or Small/Medium Solar Unit unless we are satisfied that we are capable of remotely interrupting or curtailing electricity generation from it, or that it is Emergency Backstop Enabled or Emergency Backstop Exempt (as relevant).

⁶ NER, Clause 6.6.1(a1).

⁷ In the alternative, if the AER does not accept that the Stage One and Two Orders are a service standard event, the Stage One and Two Orders should be accepted as a 'regulatory change event'. If the relevant event is a regulatory change event, the date on which the event occurred is 1 July 2024 (i.e. the date on which all of our new obligations will commence and, thus, the change in our regulatory obligations and requirements will occur).

⁸ AER Determination, *Essential Energy Critical Infrastructure Licence Condition cost pass through*, March 2022, page 10.

3.2 Event date

The VEBM is a single service standard event that was implemented in two stages through the Stage One and Stage Two Orders, as these Orders were made proximate in time and together comprised a single course of administrative action directed to the achievement of a common policy objective, being the introduction of a mechanism to ensure the maintenance of the minimum operational demand required for power system security and stability.⁹ We submit that the date on which the event occurred was the date that the Stage Two Order was made, being 31 January 2024, as this is when the last of the administrative actions or decisions, comprising the single course of administrative action, was made by the Minister.

As noted above, the 'positive change event' for the purposes of this application is the introduction of the VEBM through the variation of our licence to include new conditions. This variation of our licence was not finalised until the Stage Two Order was made on 31 January 2024. It was not possible for us to properly understand the extent of the changes to our licence conditions, the cost impact of those changes and, thus, whether these constituted a 'positive change event', until the Stage Two Order was made.

3.3 Materially increases costs

Under the Rules, a cost increase will be 'material' if it exceeds 1% of a distributor's annual revenue requirement for a specific year.

The table below provides the materiality threshold and shows the change in costs exceeds this threshold in FY24 and FY25. The details of the costs incurred are outlined in section Eligible and proposed pass-through amounts⁴.

TABLE 3.1 APPLICATION OF MATERIALITY REQUIREMENT (\$ MILLION, 2021)

DESCRIPTION	FY22	FY23	FY24	FY25	FY26
Change in costs	-	1.1	9.6	6.8	2.2
Materiality threshold	6.5	6.5	6.6	6.7	6.9

⁹ We refer to [Victoria's Emergency Backstop Mechanism for rooftop solar | Engage Victoria](#), which describes the VEBM as a mechanism being introduced in two stages, rather than two separate mechanisms.

4. Eligible and proposed pass-through amounts

The VEBM will mandate capability to remotely curtail new and replacement solar systems as a last resort to manage minimum system load emergencies.

The implementation costs of compliance with the VEBM have been predominantly delivered through the procurement of a utility server and the labour associated with in-house builds and upgrades to systems and processes. This approach was considered the most prudent pathway for least-cost compliance and managing readiness given the mandated timelines, and followed market testing of the capability and deliverability risks of off-the shelf distributed energy resource management system (DERMS) products.

A model demonstrating the build-up of our pass-through amount is attached with our application.¹⁰ In this cost model, labour hours reflect the time to build, upgrade, test, and deliver the relevant systems and processes for compliance. The corresponding labour rate is aligned with market tested rates accepted by the AER in our previous regulatory determination.

Table 4.1 summarises the total cost of meeting new license conditions under the Orders and our eligible and proposed pass-through amount. The table breaks down the total costs, between capex (implementation costs) and opex (ongoing costs) to meet and maintain compliance with the new obligations.

As shown, the majority of costs are incurred in FY24, consistent with mandated timelines. Some implementation works will be incurred in FY25, however, following the minor time extension, further requirements associated with embedded network compliance, and to support de-bugging and associated hyper-care during initial operational phase.

The key cost categories for project implementation include:

- building an inhouse **scheduler** to register devices, create customer export schedules, collate, and store data and provide a way for the network to trigger zero export commands (via utility server)
- procuring, installing and configuring a CSIP-Aus compliant **utility server** to ensure ongoing communications and control of over 20,000 new and upgraded solar systems per year
- upgrading **Salesforce** (customer relationship management software) to enhance the connections process by adding data capture of inverter details, commissioning checks, and the introduction of customer notifications for curtailed solar
- building interfaces that **integrate** Salesforce, scheduler and the utility server together, allowing automated and secure communications and integration with broader IT architecture
- **program management, readiness, and organisation change management** to update business processes, training staff, training installers, original equipment manufacturer (OEM) engagement and onboarding into our new systems.

¹⁰ Powercor cost model, MOD.01

TABLE 4.1 TOTAL EXPENDITURE TO COMPLY WITH VEBM (\$ MILLION, 2021)

CATEGORY	FY22	FY23	F24	FY25	FY26
Utility server	-	0.3	3.6	1.6	-
Scheduler	-	0.5	1.2	0.9	-
Salesforce	-	0.2	1.1	0.9	-
Integration	-	-	2.4	0.7	-
Program management, readiness, and OCM	-	0.2	1.0	0.5	-
Ongoing costs	-	-	0.4	2.1	2.2
Total	-	1.1	9.6	6.8	2.2

4.1 Costs and functionality enabled

The expenditure associated with meeting and maintaining VEBM compliance are explained in more detail below.

4.1.1 Utility server and scheduler

Prior to the introduction of the VEBM, we did not have capability to communicate with small / medium scale solar systems, typically connected to the low-voltage network, via CSIP-Aus. In response to the VEBM, a utility server was procured, and an in-house scheduler is being built to ensure communications at all times with over 20,000 new/upgraded solar systems per year.

A scheduler allows registration of devices, creation of customer export schedules, collation and storage of data and a way for the network to trigger zero export commands, and a utility server ensures ongoing communication via CSIP-Aus and compliance testing.

4.1.2 Salesforce

The VEBM introduced a new inverter commissioning process for new and upgrading solar systems to ensure compliance of inverters connecting to the distribution network, which adds increased complexity to the connections process. In response to the VEBM, the commissioning process is being updated to ensure new and upgrading solar systems are compliant with CSIP-Aus, including ensuring our systems can:

- perform registration of the customer solar system with the utility server
- perform an automated on-site commissioning capability test of the customer solar systems for installers
- require installers to submit device connection details during the connection process
- manage issues, enquiries, questions, follow ups from the installers and customers.

In addition, we did not have the capability of processes established to comply with the new customer notification requirements under the VEBM. In response to the VEBM, system upgrades are required to establish the triggering of customer notifications for:

- unplanned curtailment of interruption for larger connections
- undertaking tests to confirm inverter response (curtailment or interruption)
- customer internet/CSIP-Aus outages (i.e. loss of customer connectivity and reconnection).

4.1.3 Integration

To allow automated and secure communications and integration with our broader IT architecture, building interfaces that integrate Salesforce, the scheduler and the utility server is required. In addition, upgrades of our server and security infrastructure such as firewalls to ensure capacity and availability of systems without compromising security is needed to ensure compliance with VEBM.

4.1.4 Program management, readiness, and organisation change management

The introduction of the VEBM substantially varies the way in which we are required to connect and manage new and upgrading solar which impacts our network operations, installers, and customers. The VEBM introduces added complexity and as such, to deliver the VEBM project management, readiness and organisation change management was critical in ensuring business, industry, and customer readiness. Activities included updating business processes, training staff and installers, engaging with original equipment manufacturers (OEM), and onboarding installers into our new systems.

Significant industry engagement and development of customer related procedures and communications material was also required, as well as developing new systems and workflows to manage new related queries from installers, manufacturers, and customers in line with the new connection requirements.

4.1.5 Ongoing costs

The VEBM introduces new complexity in the connections process and new operational requirements. Ongoing costs will be required across areas including:

- technical support for installers: providing advice on technical issues faced when performing commissioning installation post go-live, for over 20,000 connections per year
- system troubleshooting: contacting customers with system issues arising past installation (for example, if a customer's system is offline and requires troubleshooting)
- compliance monitoring: engaging with installers who are not commissioning sites within timeframes and ensuring systems access is managed accordingly
- customer management: assisting customers with questions and concerns during the connections process
- operations and optimisation: minimum system load preparedness activity, responses and reports, compliance monitoring and resolution, and maintenance of tools, reports and processes
- ongoing licensing fees for utility server, Public Key Infrastructure (PKI solution), windows server and database support.

4.2 Future requirements

The functionality of the system being established is limited to that only required to comply with the VEBM, and is therefore only suitable for a certain volume of connections and complexity. In the future, a full scale sophisticated DERMS solution will be required for the introduction of flexible exports, in order to:

- include capability allocation algorithms and dynamic operating envelopes for the roll out of flexible exports
- scale the systems to continue to communicate and curtail increasing volumes
- provide more sophisticated and optimised control to minimise customer impacts while maintaining system security and managing network impacts across low voltage and high voltage networks.

Updates to the commissioning systems and processes will also be likely required to allow for various customer choices associated with flexible connections, and to cater for the commissioning of other consumer energy resource (CER) types, as well as upgrades for customer visibility of flexible performance metrics both historical and forecast.

4.3 Proposed positive pass-through amount in each regulatory year

The Rules require a pass-through application include the amount of the proposed positive pass-through amount that should be passed through to customers in each regulatory year. Consistent with our attached post tax revenue model, we propose the positive pass-through amounts outlined in table 4.2.¹¹

The revenue is being proposed to be recovered in FY26. In total, the incremental bill impact of our pass-through application on the typical residential customer is approximately \$6.79 in FY26.

TABLE 4.2 PROPOSED POSITIVE PASS-THROUGH AMOUNT (\$ MILLION, NOMINAL)

DESCRIPTION	FY22	FY23	FY24	FY25	FY26	TOTAL
Incremental annual revenue requirement (unsmoothed)	-	-	0.69	5.17	6.53	12.39
Incremental annual expected revenue (smoothed)	-	-	-	-	12.74	12.74

Source: Powercor amended PTRM, MOD.02 [commercial-in-confidence]

¹¹ Powercor amended PTRM, MOD.02

A Compliance checklist

TABLE 4.3 RULES COMPLIANCE CHECKLIST

CLAUSE	REQUIREMENT	SECTION
6.6.1(c)	To seek the approval of the AER to pass through a positive pass-through amount, a Distribution Network Service Provider must submit to the AER, within 90 business days of the relevant positive change event occurring, a written statement which specifies:	
	<ul style="list-style-type: none"> the details of the positive change event 	Section 2 and 3
	<ul style="list-style-type: none"> the date on which the positive change event occurred 	Section 3.2
	<ul style="list-style-type: none"> the eligible pass-through amount in respect of that positive change event 	Section 4
	<ul style="list-style-type: none"> the positive pass-through amount the Distribution Network Service Provider proposes in relation to the positive change event 	Section 4
	<ul style="list-style-type: none"> the amount of the positive pass-through amount that the Distribution Network Service Provider proposes should be passed through to Distribution Network Users in the regulatory year in which, and each regulatory year after that in which, the positive change event occurred 	Section 4.3
	<ul style="list-style-type: none"> evidence of the actual and likely increase in costs referred to in subparagraph (3); and that such costs occur solely as a consequence of the positive change event 	Section 4 and MOD.01
	<ul style="list-style-type: none"> such other information as may be required under any relevant regulatory information instrument 	Attachments