Smart Energy, Sustainable Future

DECISION PAPER

PROPOSED MODIFICATIONS TO THE METERING CODE

29 AUG 2022

ENERGY MARKET AUTHORITY
991G Alexandra Road
#01-29 Singapore 119975
www.ema.gov.sg

Please direct any enquiries by e-mail to: EMA_ES@ema.gov.sg

Disclaimer:

The information in this document is subject to change and shall not be treated as constituting any advice to any person. It does not in any way bind the Energy Market Authority to grant any approval or official permission for any matter, including but not limited to the grant of any exemption nor to the terms of any exemption. The Energy Market Authority reserves the right to change its policies and/or to amend any information in this document without prior notice. Persons who may be in doubt about how the information in this document may affect them or their commercial activities are advised to seek independent legal advice or any other professional advice as they may deem appropriate. The Energy Market Authority shall not be responsible or liable for any consequences (financial or otherwise) or any damage or loss suffered, directly or indirectly, by any person resulting or arising from the use of or reliance on any information in this document.

1 Introduction

1.1 The Metering Code sets the minimum conditions that a metering service provider must meet in carrying out its obligation to provide services to metered entities. It also sets out the rights and obligations of metering service providers and metered entities in respect of both the wholesale electricity market and the retail electricity market. Specifications for meter installations and equipment are also described in the Code.

2 Proposed modifications to the Metering Code

2.1 Pursuant to Section 1.7 of the Metering Code, EMA has sought representations on the proposed modifications to the Metering Code to provide new metering requirements for generation facilities of installed capacity 10MW or lower that are connected to the distribution network and include new technical requirements relating to electricity import. In addition, the proposed modifications seek to provide clarity on the respective Licensees who are required to comply with the Metering Code as a condition of its electricity licence.

2.2 Feedback was received from 3 respondents when the consultation closed on 12 November 2021. EMA has carefully considered the feedback and our responses are in Appendix 1. EMA is still reviewing the remaining feedback pertaining to other proposed modifications and will issue a separate Final Determination Paper in due course.

3 EMA's Decision

3.1 Taking into account the feedback received, EMA has decided to modify the Metering Code as set out in Appendix 2. The proposed modifications will come into effect on 12 Sep 2022.

Appendix 1

EMA's Response to Written Representations

Modification Ref. No.	Clause	Public/ Industry	Comments	EMA's Response
MC/2021/2	1.4.1	EMC	EMC proposes to change **"import licensee's"** to **"Importer Licensee's"** for drafting consistency.	EMA is agreeable to EMC's proposed editorial change.
MC/2021/11			EMC proposes to change **"import licensee's"** to **"Importer Licensee's"** for drafting consistency. EMC proposes to include **"Retail Electricity Licensees"** as part of the definition of **"metered entity"** for completeness. Such entities can register generation facilities less than 10 MW and/or load facilities to participate in the Interruptible Load (IL) and the Demand Response (DR) Program in Singapore Wholesale Electricity Market (SWEM).	EMA is agreeable to EMC's proposed editorial change and inclusion.
MC/2021/3	1.4.1	PLP	We understand that Singapore aims to tap on regional power grids to access cleaner energy sources. Import of electricity is expected to substantially increase, likely in phases, in the next few years by up to 4GW of low-carbon electricity by 2035. To support the phased increased of electricity imports, the definition of "import facility" and "connection point" should be broadened. As currently written in the proposed modifications, it restricts to installations based in Singapore. We would propose to expand the definition and permit the import license holders to locate meter installations at the point of generation	The Metering Code lays out the technical requirements, among other things, for meter installations and equipment installed within Singapore. Therefore, regardless of how many generating units are connected upstream, settlement for electricity imported will be based on readings recorded by meter(s) at the import facilities located within Singapore.

Modification Ref. No.	Clause	Public/ Industry	Comments	EMA's Response
			outside of Singapore's boundaries as there could be scenarios where over time, a. Existing import license holders could add GRF in subsequent phases of the development resulting in multiple GRFs sharing a common HVAC/HVDC; and/or b. New import license holders could add a GRF in subsequent phases of development resulting in multiple importers sharing a common HVAC/HVDC. Our proposal would allow multiple units to be registered and recorded accordingly on a per GRF basis under the scenarios above.	
MC/2021/14	2.1.1	SP Group	We would like to highlight to EMA that currently for Licensees with embedded generation, some of these Licensees are not receiving any payments for export of excess electricity to the grid. Hence, the generation meter that they install and maintain is purely for the purposes of determining the applicable grid charge. In such a circumstance, the consumer would not have the incentive to properly maintain and ensure the accuracy of the meter installation. Further, the interval for subsequent audit and test could be up to fifteen years for LT connections and five years for HT connections. Although the code prescribes that the faulty or defective meter should be replaced as soon as practicable, these consumers do not have the incentive to ensure that their meter is replaced quickly as the	EMA noted the issues highlighted by SP Group on generation meters for embedded generators. EMA will follow-up with SP Group separately to develop the required measures for MESP to replace their defective meters on time. Notwithstanding, this has no bearing on the amendments for this clause

Modification Ref. No.	Clause	Public/ Industry	Comments	EMA's Response
			meter readings are only used for settlement of grid charges and not payments for export of excess electricity. As per the Metering Code Clause 4.6.4, the default meter reading for that trading interval is zero whenever the meter is defective or malfunctioning. This creates an issue of under billing of the UOS charges to such Licensees. EMA might want to reconsider the estimation method in such a scenario. System change would be needed to effect a new estimation methodology	
MC/2021/17	2.4.10	N.A	Modification will be made to clause 2.4.10 in order to align to SP's proposed amendments for clause 2.4.11.	After taking industry's feedback into consideration, EMA has revised clause 2.4.10 as follow: "Except in relation to an embedded generation facility, the main and check meters for a generation facility (GF) with total generation capacity above 10MW or solar photovoltaic (PV) facilities of capacity above 10MWac, shall be a 3-phase, 4-wire type or 3-phase, 3-wire type of accuracy class 0.2s. Metering current transformers of accuracy class 0.2 with 1 or 5 amperes secondary current and 30VA burden shall be provided for each circuit. The rated short-time current rating shall not be less than 40kA 3 seconds for supply at 66kV or 63kA 1 seconds for supply at 230kV and above. Metering voltage transformers shall be of accuracy class 0.5 with 110 volts secondary voltage and a burden of not less than 100VA per phase per circuit. Refer to table F2.4.10a for reference."

Modification Ref. No.	Clause	Public/ Industry	Comments	EMA's Response
MC/2021/18	2.4.11 – New Clause	SP Group	2.4.25 A meter for a consumer whose installation is connected to an ultra high voltage, an extra high voltage or a high voltage transmission line shall be 3-phase, 3-wire type of accuracy class 0.5. Two metering current transformers of accuracy class 0.5 with 5 amperes secondary current and 30VA burden for 66kV supply or 15VA burden for 22kV or 6.6kV supply shall be provided for each circuit. The rated short-time current rating shall not be less than 40kA 3 seconds for supply at 66kV or 25kA 3 seconds for supply at 22kV or 20kA 3 seconds for supply at 6.6kV and below. For each circuit, metering voltage transformers of accuracy class 1.0 with 110 volts secondary voltage and 100VA burden per phase for star-star connection or 180VA burden per phase for 'V' connection shall be provided. We would like to propose the following amendments to the new clause to align with the current requirements in clause 2.4.25 for 22kV and 6.6kV installations as well as other higher voltage installations: "Except in relation to an embedded generation facility, the main and check meters for a GF connected to an ultra high voltage, an extra high voltage or a high voltage transmission line ~~the distribution network at 22kV or 6.6kV and~~ with generation capacity 10MW and below or solar photovoltaic (PV) facilities of capacity 10Mwac and below, shall be a ~~3-phase, 4-wire type or~~ 3-phase, 3-wire type of accuracy class 0.5. Two ~~M~~metering current transformers of accuracy class 0.5 with ~~1 or~~ 5 amperes secondary current and 30VA burden for 66kV supply or 15VA burden for 22kV or 6.6kV supply shall be provided for each circuit. The rated short-time current rating shall not be less than 40kA 3 seconds for supply at 66kV or 25kA 3 seconds for supply at 22kV or 20kA 3 seconds for supply at 6.6kV and below. For each circuit, ~~M~~metering voltage transformers ~~shall be~~ of accuracy class 1.0 with 110	After taking industry's feedback into consideration, EMA will revise clause 2.4.11 as follows: "Except in relation to an embedded generation facility, the main and check meters for a generation facility (GF) connected to the distribution network at 22kV or 6.6kV and with generation capacity 10MW and below or solar photovoltaic (PV) facilities of capacity 10Mwac and below, shall be a 3-phase, 4-wire type or 3-phase, 3-wire type of accuracy class 0.5. Metering current transformers of accuracy class 0.5 with 1 or 5 amperes secondary current and 30VA burden shall be provided for each circuit. Metering voltage transformers shall be of accuracy class 1.0 with 110 volts secondary voltage and a burden of not less than 100VA per phase per circuit. Refer to table F2.4.10a for reference."

Modification Ref. No.	Clause	Public/ Industry	Comments	EMA's Response
			volts secondary voltage and ~~a burden of not less than~~ 100VA burden per phase for star-star connection shall be provided ~~per circuit~~."	
MC/2021/19	2.4.12 New Clause	SP Group	We would like to confirm that a check meter is not required for low voltage network as per clause 2.4.26. **Low Voltage Installation Meters** 2.4.26 With the exception of a residential contestable consumers on Load Profiling, a meter installation for a contestable consumer whose installation is connected to a low voltage transmission line shall have: (a) a main meter; (b) a recording device capable of storing all measured quantities for up to 30 days; (c) a communication link, provided by the contestable consumer, to the relevant telecommunication network that may, at the consumer's discretion, be shared with other users; (d) where applicable, metering current transformer provided by the contestable consumer; and (e) a suitable facility (including all necessary pre-wiring), provided by the contestable consumer, in which to house the meter installation. It is the responsibility of the Licensed Electrical Worker employed or engaged by the consumer requiring metering services to ensure that the metering current transformer,	EMA would like to clarify that a check meter is not required for generation facilities connected to the low voltage network. Please refer to the revised clause 2.4.12 in Appendix 2. We note that in the case where there is no check meter and the main meter is faulty, the default reading will be set to zero as per the current provisions in the Metering Code. On this consideration, generation facilities connected to the low voltage network may wish to still install a check meter, though this will no longer be mandatory.

Modification Ref. No.	Clause	Public/ Industry	Comments	EMA's Response
			In the case where there is no check meter and the main meter is faulty, the default reading will be set to zero per the Metering Code unless otherwise advised. EMA might want to reconsider the estimation method in such a scenario. System change would be needed to effect a new estimation methodology.	

Appendix 2

Modifications to the Transmission Code

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
To provide more clarity for the Licensee regarding the compliance of the metering code				
MC/2021/1	1.2.1	Subject to section 1.2.2, this Code applies to a Licensee who is subject to this Code as a condition of its electricity licence.	Subject to section 1.2.2, this Code applies to a Licensee who is subject to this Code as a condition of its electricity licence and a Licensee defined in section 1.4.1 of this Code.	To provide clarity on the respective Licensees who are required to comply with this Code as a condition of its electricity licence.
Modification to the Definitions in the code				
MC/2021/2	1.4.1	"connect" means in respect of a consumer's or Generation Licensee's installation, to put into place a physical link between the relevant service connection and the relevant connection point, but excluding the physical link between the service connection termination and the installation, and "connection", "disconnection", "reconnection" and all grammatical variations thereof shall be interpreted accordingly, provided that the term "disconnection" shall be interpreted to mean the removal of the physical link and/or discontinuing the flow of electricity to or from an installation;	"connect" means in respect of a consumer's or Generation Licensee's or importer licensee's installation, to put into place a physical link between the relevant service connection and the relevant connection point, but excluding the physical link between the service connection termination and the installation, and "connection", "disconnection", "reconnection" and all grammatical variations thereof shall be interpreted accordingly, provided that the term "disconnection" shall be interpreted to mean the removal of the physical link and/or discontinuing the flow of electricity to or from an installation;	Extending the definition for connect to include Importer licensee

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
MC/2021/3	1.4.1	"connection point" means • for a load, the point at which the circuit breaker or other isolating device owned and controlled by the Transmission Licensee is located on the Transmission Licensee's side of a service connection, other than that of an interconnector; and • for a generating station, the point at which the Transmission System is terminated at the Generation Licensee's installation;	"connection point" means • for a load, the point at which the circuit breaker or other isolating device owned and controlled by the Transmission Licensee is located on the Transmission Licensee's side of a service connection, other than that of an interconnector; ~~and~~ • ~~for a generating station, the point at which the Transmission System is terminated at the Generation Licensee's installation;~~ • <u>for a generating station including one that has an import facility that is connected to the station's switch-house, the point on the transmission system where the generating station is connected to; and</u> • <u>for an import facility that is connected directly to a Transmission Licensee's substation, the point on the transmission system where the import facility is connected to.</u>	Extending the definition for connection point to include import facility
MC/2021/4	1.4.1	New definition	<u>"electricity licence" has the same meaning as in the Act;</u>	To provide clarity on the respective Licensees who are required to comply with this Code as a condition of its electricity licence.

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
MC/2021/5	1.4.1	New definition	"Licensee" means: (i) a Generation Licensee; (ii) an Importer Licensee; (iii) a Market Company Licensee; (iv) a Market Support Services Licensee; (v) a Retail Electricity Licensee; (vi) a Transmission Licensee; (vii) a Wholesaler Licensee;	To provide clarity on the respective Licensees who are required to comply with this Code as a condition of its electricity licence.
MC/2021/6	1.4.1	"Generation Licensee" means a person who is 10 uthorized by an electricity licence to generate electricity;	"Generation Licensee" ~~means a person who is 10uthorized by an electricity licence to generate electricity~~ has the same meaning as in the Act;	To align with the definition in the Act.

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
MC/2021/8	1.4.1	New definition	"Market Company Licensee" means the company which holds an electricity licence authorising it to operate any wholesale electricity market pursuant to section 42 of the Act;	To provide clarity on the respective Licensees who are required to comply with this Code as a condition of its electricity licence.
MC/2021/9	1.4.1	New definition	"Retail Electricity Licensee" has the same meaning as in the Act;	To provide clarity on the respective Licensees who are required to comply with this Code as a condition of its electricity licence.
MC/2021/10	1.4.1	"Market Support Service Licensee" means a person who is authorised by an electricity licence to provide market support services	"Market Support Services Licensee" ~~means a person who is authorised by an electricity licence to provide market support services~~ has the same meaning as in the Act;	To align with the definition in the Act.

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
MC/2021/11	1.4.1	"metered entity" means a consumer, Generation Licensee, Wholesaler Licensee (Generation) or any other person responsible for the flow of electricity measured by a meter at which the transmission system is terminated at the associated installation, and shall include the Transmission Licensee or any person through whose plant or equipment there is a flow of electricity that is being metered for the purposes of settlement by an electricity licensee;	"metered entity" means a consumer, Generation Licensee, Importer Licensee, Retail Electricity Licensees, Wholesaler Licensee ~~(Generation)~~ or any other person responsible for the flow of electricity measured by a meter at which the transmission system is terminated at the associated installation, and shall include the Transmission Licensee or any person through whose plant or equipment there is a flow of electricity that is being metered for the purposes of settlement by an electricity licensee;	To update the reference to Wholesaler Licensees (following the Wholesaler Licence Modification Final Determination Paper issued on 29 Jun 2021) and to extend the definition for metered entity to include Import Licensee and Retail Electricity Licensee.
MC/2021/12	1.4.1	New definition	"Transmission Licensee" has the same meaning as in the Act;	To provide clarity on the respective Licensees who are required to comply with this Code as a condition of its electricity licence.
MC/2021/13	1.4.1	"Wholesaler Licensee (Generation)" means a person who is authorised by an electricity licence to trade in any wholesale electricity market operated by the Market Company for the purpose of selling electricity;	"Wholesaler Licensee ~~(Generation)~~" means a person who is authorised by an electricity licence to trade in any wholesale electricity market operated by the Market Company for the purpose of ~~selling electricity;~~ (2) selling electricity generated by the Licensee under the exemption set out in the Electricity (Electricity	To update the reference to Wholesaler Licensees (following the Wholesaler Licence Modification Final Determination Paper issued on 29 Jun 2021).

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
			Generation Licence) (Exemption) (No. 2) Order; and/or (ii) providing ancillary services or any electricity-related product or service through a load reduction;	
To amend 2.1.1 – to change "Wholesaler Licensee (Generation)" to "Wholesaler Licensee"				
MC/2021/14	2.1.1	Subject to section 2.4.7, for those meter installations associated with a generation facility, the Generation Licensee or Wholesaler Licensee (Generation) that owns the generation facility shall be the MESP.	Subject to section 2.4.7, for those meter installations associated with a generation facility, the Generation Licensee or Wholesaler Licensee ~~(Generation)~~ that owns the generation facility shall be the MESP.	To update the reference to Wholesaler Licensees (following the Wholesaler Licence Modification Final Determination Paper issued on 29 Jun 2021).

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
To amend 2.2.3 – to change "Wholesaler Licensee (Generation)" to "Wholesaler Licensee"				
MC/2021/16	2.2.3	Wholesaler Licensee (Generation) with embedded generation facility may engage the Transmission Licensee to provide, install, commission, maintain, repair, replace, inspect and test each meter installation. The Wholesaler Licensee (Generation) shall pay the relevant charges based on the metering services provided.	Wholesaler Licensee ~~(Generation)~~ with embedded generation facility may engage the Transmission Licensee to provide, install, commission, maintain, repair, replace, inspect and test each meter installation. The Wholesaler Licensee ~~(Generation)~~ shall pay the relevant charges based on the metering services provided.	To update the reference to Wholesaler Licensees (following the Wholesaler Licence Modification Final Determination Paper issued on 29 Jun 2021).

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
New Metering requirement for Generation facility with 10MW/10Mwac and lower capacity				
MC/2021/17	2.4.10	Except in relation to an embedded generation facility, the main and check meters for a GF shall be a 3-phase, 4-wire type or 3-phase, 3-wire type of accuracy class 0.2s. Metering current transformers of accuracy class 0.2 with 1 or 5 amperes secondary current and 30VA burden shall be provided for each circuit. Metering voltage transformers shall be of accuracy class 0.5 with 110 volts secondary voltage and a burden of not less than 100VA per phase per circuit.	Except in relation to an embedded generation facility, the main and check meters for a <u>generation facility (GF) with total generation capacity above 10MW or solar photovoltaic (PV) facilities of capacity above 10Mwac</u>, shall be a 3-phase, 4-wire type or 3-phase, 3-wire type of accuracy class 0.2s. Metering current transformers of accuracy class 0.2 with 1 or 5 amperes secondary current and 30VA burden shall be provided for each circuit. <u>The rated short-time current rating shall not be less than 40kA 3 seconds for supply at 66kV or 63kA 1 seconds for supply at 230kV and above.</u> Metering voltage transformers shall be of accuracy class 0.5 with 110 volts secondary voltage and a burden of not less than 100VA per phase per circuit. <u>Refer to table F2.4.10a for reference.</u>	To differentiate the metering requirements for generation facilities (“GF”). The more stringent metering requirements under section 2.4.10 are intended for large generating facility namely those of capacity above 10MW or solar photovoltaic (PV) facilities of capacity above 10Mwac. This is necessary given their large generation capacity, as any inaccurate meter readings will be smeared to all consumers as higher/lower transmission system losses.

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
MC/2021/18	2.4.11	New clause	Except in relation to an embedded generation facility, the main and check meters for a generation facility (GF) connected to the distribution network at 22kV or 6.6kV and with generation capacity 10MW and below or solar photovoltaic (PV) facilities of capacity 10Mwac and below, shall be a 3-phase, 4-wire type or 3-phase, 3-wire type of accuracy class 0.5. Metering current transformers of accuracy class 0.5 with 1 or 5 amperes secondary current and 30VA burden shall be provided for each circuit. Metering voltage transformers shall be of accuracy class 1.0 with 110 volts secondary voltage and a burden of not less than 100VA per phase per circuit. Refer to table F2.4.10a for reference.	To relax the metering requirements for GF with a total generation capacity 10MW and below or solar photovoltaic (PV) facilities of capacity 10MWac and below. Given their relatively small generation capacity, they are not required to comply with the more stringent metering requirements under section 2.4.10. Instead, they shall comply with the same metering accuracy class and burden requirements as that of high voltage installations as stated under section 2.4.25 of the Metering Code and as shown in the proposed clause 2.4.11
MC/2021/19	2.4.12	New clause	Except in relation to an embedded generation facility, the main meter for a generation facility (GF) connected to the low voltage network shall be either 1-phase, 2-wire or 3-phase, 4-wire type of accuracy class 2.0, and metering current transformers shall be of accuracy class 0.5 with 5 amperes secondary current and a burden of not less than 5VA. Section 2.4.8 (b) does not apply to a GF connected to the low voltage network. Refer to table F2.4.10a for reference.	To relax the metering requirements for GF with generation capacity connected to the distribution low voltage network. Given their small generation capacity, they are not required to comply with the more stringent metering requirements under sections 2.4.8 (b) and 2.4.10. Instead, they shall comply with the same metering accuracy class and burden requirements as that of low voltage installations as stated under section 2.4.30 of the

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
				Metering Code and as shown in the proposed clause 2.4.12.
MC/2021/20	2.4.14	2.4.14: Section 2.4.8 to 2.4.10 and 2.4.12 do not apply to intermittent embedded generation facilities on Solar Generation Profiling.	2.4.1~~4~~6: Section 2.4.8 to 2.4.12 and 2.4.14 do not apply to intermittent embedded generation facilities on Solar Generation Profiling.	Given the proposed introduction of new clauses 2.4.11 and 2.4.12, the current section 2.4.14 must be renumbered to 2.4.16.

Figure F2.4.10 a – Metering requirement for Generation facility ('GF")

GF and connection setups	Meter Wiring	Meter Accuracy Class	Current Transformer (CT) Class	CT Burden	CT Secondary Current	Voltage transformers (VT) accuracy class	VT Burden	VT Secondary Current	Check Meter Needed?
GF with a total generation capacity above 10MW or solar photovoltaic (PV) facilities of capacity above 10MWac	3-phase, 4-wire type or 3-phase, 3-wire type	0.2s	0.2	30VA burden shall be provided for each circuit	1 or 5 A	0.5	Burden of not less than 100VA burden per phase per circuit	110 volts secondary voltage	Yes
GF connected to the distribution network at 22kV or 6.6kV and with generation capacity 10MW and below or solar photovoltaic (PV) facilities of capacity 10MWac and below	3-phase, 4-wire type or 3-phase, 3-wire type	0.5	0.5	30VA burden shall be provided for each circuit.	1 or 5 A	1.0	Burden of not less than 100VA per phase per circuit	110 volts secondary voltage	Yes
GF connected to the low voltage network	1-phase, 2-wire or 3-phase, 4-wire type	2.0	0.5	Not less than 5VA	5 A				No

Modification Ref. No.	Clause	Original Text	Modified Text	Reasons
To amend 4.6.7(i)– to change "Wholesaler Licensee (Generation)" to "Wholesaler Licensee"				
MC/2021/21	4.6.7(i)	A Generation Licensee or a Wholesaler Licensee (Generation) for a generation meter. The Generation Licensee or a Wholesaler Licensee (Generation) may use any means it deems appropriate, but in any case will provide justification for the approach adopted, along with supporting evidence to justify their estimation for each occasion an estimate is requested. Such information shall be recorded by the MDM and made available to the Authority or surveillance panel at their request, to support an investigation into inappropriate behaviour.	A Generation Licensee or a Wholesaler Licensee ~~(Generation)~~ for a generation meter. The Generation Licensee or a Wholesaler Licensee ~~(Generation)~~ may use any means it deems appropriate, but in any case will provide justification for the approach adopted, along with supporting evidence to justify their estimation for each occasion an estimate is requested. Such information shall be recorded by the MDM and made available to the Authority or surveillance panel at their request, to support an investigation into inappropriate behaviour.	To update the reference to Wholesaler Licensees (following the Wholesaler Licence Modification Final Determination Paper issued on 29 Jun 2021).