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Electricity Authority Te Mana Hiko
Level 7, Aon Centre
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Submission: Incorporation of the Connected Asset Commissioning, Testing and Information Standard (CACTIS) by Reference into the Electricity Industry Participation Code 2010

1. Introduction

SMA is a leading global specialist in photovoltaic (PV) system and battery energy storage system (BESS) power conversion and control technology. Our PV solar inverter and battery storage products are complemented by components for energy management, system monitoring, and data analysis. SMA has a global inverter capacity of 144 GW in more than 190 countries and more than 10 GW inverter capacity in Australia. We are headquartered in Germany, with employees in 19 countries.

The SMA parent company, SMA Solar Technology Aktiengesellschaft (SMA AG), is listed on the Prime Standard of the Frankfurt Stock Exchange (S92) and the Small-Cap-duetsche Aktienindex (SDAX index).

SMA operates in the New Zealand market through SMA Australia Pty Ltd (ACN 127 198 761), supplying equipment to asset owners who connect to the New Zealand grid.

SMA is not an industry participant under the Electricity Industry Act 2010 (Act) and acknowledges that the Electricity Industry Participation Code 2010 (Code) does not impose obligations directly on original equipment manufacturers (OEMs). However, the practical effect of the proposed incorporation of the CACTIS is to create compliance obligations that asset owners can only discharge with OEM cooperation. SMA therefore has a direct and legitimate interest in the content of the material being incorporated.

This submission is made in response to the Authority's invitation for comments on its proposal to incorporate the approved CACTIS by reference into the Code, as required under Schedule 2 of the Legislation Act 2019.

2. Summary of SMA's Position

SMA supports the principle of standardised information provision to the System Operator to promote the security and reliability of the New Zealand power system. SMA recognises the importance of accurate modelling and testing information for power system studies, particularly as the penetration of inverter-based resources (IBRs) increases.

However, SMA submits that the CACTIS, in its current form, is not "otherwise appropriate" for incorporation into the Code within the meaning of clause 1(d)(iii) of Schedule 2 of the Legislation Act 2019, for the following reasons:

1. The CACTIS contains technical specifications that presuppose a level of OEM disclosure and cooperation that does not reflect commercial or technical reality in the global inverter market.
2. The regulatory framework creates a structural gap: legal obligations fall on asset owners, but practical compliance requires OEM involvement.
3. Certain CACTIS requirements (particularly relating to model format proliferation and access to proprietary control algorithms) conflict with legitimate OEM intellectual property protections.
4. The CACTIS was developed through a consultation process directed at industry participants. OEMs are not industry participants, are not registered with the Authority, and were not the target audience of that process. The technical specifications were accordingly settled without meaningful input from the parties whose cooperation is essential to their delivery.

SMA requests that the Authority defer commencement of clause 8.73 of the Code and the CACTIS-dependent obligations in clause 2(10)(a)–(d) of Technical Code A, Schedule 8.3 to allow a targeted OEM consultation period on the CACTIS content before it is given binding legal effect.

3. The regulatory structure and its implications

3.1 The Code amendment and CACTIS are a single package

The Authority's Code amendment includes clause 8.73, which incorporates the CACTIS by reference directly into the Code. Clause 8.73(1) provides that "the connected asset commissioning, testing and information standard is incorporated by reference in this Code." The Code amendment and the incorporation are therefore a single instrument, with commencement scheduled for 1 July 2026.

The substantive obligations in clause 2(10)(a)–(d) of Technical Code A, Schedule 8.3 require asset owners to carry out connection studies, provide connection study reports, ensure that modelling information is provided, and provide models "in compliance with the connected asset commissioning, testing and information standard." These obligations are inoperable without an incorporated standard to measure compliance against. The Code provisions and the CACTIS are interdependent: the former creates the obligation framework; the latter defines the content of the obligation.

The Schedule 2 consultation on which the Authority is now seeking comment is therefore not a peripheral procedural step. It is a prerequisite to the valid commencement of the CACTIS-dependent provisions of the Code amendment. If the Authority cannot satisfy itself under clause 1(d)(iii) of Schedule 2 of the Legislation Act that the CACTIS is "otherwise appropriate" for incorporation, those provisions cannot lawfully commence as planned.

3.2 The regulatory gap

Section 32(2) of the Act limits the Code to imposing obligations on industry participants or specified persons. OEMs are neither. The Authority's own consultation paper explicitly acknowledged this position, noting that "original equipment manufacturers have no Code obligations, with asset owners responsible for meeting any Code obligations that require the involvement of original equipment manufacturers."

This creates a structural regulatory gap. The Code requires asset owners to provide information, models, and data in compliance with CACTIS. In practice, much of this material, particularly proprietary simulation models, encrypted control algorithms, and platform-specific model translations, can only be produced by the OEM. If the OEM is unable or unwilling to provide what CACTIS demands, the asset owner is in breach of the Code through no fault of its own. The OEM faces no legal consequence under the regulatory framework.

SMA submits that it is not “otherwise appropriate” to incorporate material that creates an unavoidable compliance gap for the very parties it is designed to regulate. The Authority should satisfy itself that the technical specifications in CACTIS are achievable before giving them the force of law.

3.3 Future amendments to CACTIS

Clause 8.73(2) provides that clauses 7.13 to 7.22 of the Code apply to any amendment or replacement of the CACTIS. This means that once the initial incorporation is complete, future amendments to CACTIS may be made through the system operation document amendment process, which is a lighter process than the Schedule 2 incorporation by reference procedure under the Legislation Act.

This has a critical implication: the initial incorporation sets the baseline. If the CACTIS is incorporated in a form that contains requirements OEMs cannot deliver, those requirements become embedded in a legally binding instrument that may subsequently be amended through a process that does not involve the same level of statutory scrutiny or public consultation. Getting the initial version right is therefore essential. There may not be an equivalent opportunity to address these issues once CACTIS is in force.

4. Specific concerns with CACTIS content

4.1 Model format prescription and compliance risk

The CACTIS prescribes the provision of simulation models in specific formats across multiple software platforms. While SMA acknowledges that power system studies may require models in different formats, the ability of an OEM to provide models in any given format depends on a range of factors including the software platform, the availability of validated model libraries for that platform, and whether translation from one format to another is technically feasible without disclosing protected source code. Translation between platforms is non-trivial, introduces validation uncertainty, and may not be technically feasible for all model types. Strictly prescribing specific formats in a binding standard creates a material risk that asset owners will be in breach of the Code for reasons outside their control.

Further, the CACTIS imposes detailed model documentation requirements that may not be available in their entirety from the OEM. OEMs provide documentation to support the validated use of their models, but the scope and format of that documentation reflects the OEM's global product and IP framework. A prescriptive regulatory standard that specifies the exact content and structure of model documentation may not align with what OEMs are able to provide, creating a further compliance gap for asset owners.

4.2 Access to proprietary information

Certain CACTIS requirements implicitly require access to unencrypted or source-level OEM models. OEMs globally protect their simulation models through encryption, black-boxing, or heavily

restricted licensing arrangements. These protections exist for legitimate commercial reasons as the models embody years of R&D investment and competitive differentiation.

A regulatory standard that presupposes the availability of unencrypted models does not reflect the reality of how IBR equipment is supplied globally. SMA supports providing validated, benchmarked models in agreed formats, but cannot support requirements that would compel the disclosure of proprietary source code or unencrypted control algorithms.

The Authority may note that the Code amendments to Technical Code A include provisions intended to replace the requirement for NDAs between the System Operator and OEMs. While SMA acknowledges this development, confidentiality protections within the NZ regulatory framework alone may not provide the level of IP protection that global OEMs require. SMA operates across multiple jurisdictions and needs assurance that its IP is protected to a standard consistent with its global arrangements. Statutory protections within one national framework, however well-intentioned, may not address the cross-jurisdictional risks that OEMs must manage.

4.3 Inadequacy of the Code's protective framework for OEM intellectual property

The appropriateness of incorporating CACTIS by reference cannot be assessed in isolation from the Code provisions that govern how the information CACTIS requires will be handled once provided. The more prescriptive and IP-sensitive the CACTIS requirements are (unencrypted models, source-level simulation data, multiple platform-specific formats) the more robust the protective framework must be. SMA submits that the current provisions in clause 3(2A) of Technical Code A do not provide adequate protection for OEM intellectual property, and that this is a further reason why incorporating a CACTIS of this scope and sensitivity is not "otherwise appropriate."

(a) **The confidentiality obligation is owed to the wrong party.** Clause 3(2A)(b) requires the System Operator to treat the information as "confidential to the party that provided that information." Under the Code, the party that provides the information is the asset owner, not the OEM. The OEM whose intellectual property is actually at risk has no standing under the Code to enforce this provision. If the System Operator were to breach the confidentiality obligation, it is the asset owner, not the OEM, who would have the claim. The asset owner may have no commercial incentive to pursue such a claim on the OEM's behalf. The party with the most to lose from a confidentiality breach has no remedy under the framework.

(b) **Access to models is uncontrolled.** Clause 3(2A)(a) permits access to "system operator employees, contractors or advisers that require access to the information to perform their roles." This is materially broader than what any commercial NDA would permit. Under standard commercial practice for IP of this sensitivity, access would be limited to nominated individuals who have signed individual confidentiality undertakings, with the IP owner having a right to be notified of who has access. Clause 3(2A)(a) imposes no such requirements: there is no obligation to identify or nominate the individuals who will access the models, no requirement for those individuals to execute personal confidentiality undertakings, no limit on the number of persons who may have access, and no notification to the OEM of who has accessed its IP. A contractor or adviser engaged by the System Operator to perform power system studies could access SMA's unencrypted models without SMA ever being informed of who they are or what confidentiality obligations bind them.

(c) **No confidentiality cascade to third-party recipients.** When the System Operator's contractors or advisers access the models under clause 3(2A)(a), there is no requirement

for those parties to be bound by confidentiality obligations at least as restrictive as the System Operator's own obligation. In any commercial arrangement involving sensitive intellectual property, a flow-down or back-to-back confidentiality requirement is standard: the receiving party must ensure its personnel and subcontractors are bound by equivalent terms. Clause 3(2A) contains no such mechanism. The System Operator's contractors could receive OEM models subject only to whatever general employment or engagement terms apply to them, which may be materially less protective than what the OEM would require.

(d) **The consent mechanism has been removed**. SMA notes that earlier drafts of clause 3(2A)(b) included a requirement for "prior written consent of the asset owner" before unencrypted models could be shared with grid owners or distributors. The final version has replaced this consent gate with a general obligation to "treat as confidential." This is a materially weaker protection. Even the earlier formulation was inadequate from an OEM perspective (because the consent right belonged to the asset owner, not the IP owner), but the removal of any consent gate further diminishes the protections available.

(e) **The OEM has no remedy under the Code.** Even in the event of a clear breach of clause 3(2A) by the System Operator, the OEM has no recourse under the Code. The Code creates obligations between industry participants and the System Operator. OEMs are not industry participants. The OEM cannot bring a complaint to the Authority, cannot refer a breach to the Rulings Panel, and has no contractual relationship with the System Operator unless a separate NDA is in place, which is precisely the arrangement the Code amendment is intended to displace.

SMA acknowledges that the Code amendment to clause 3(2A) is decided and takes effect on 1 July 2026. SMA does not seek to reopen that amendment through this submission. However, the adequacy of the protective framework is directly relevant to the appropriateness of incorporating CACTIS. If CACTIS required only encrypted, benchmarked models in limited formats, the protections in clause 3(2A) might be sufficient. But the CACTIS as drafted contemplates the provision of unencrypted source-level models containing proprietary control algorithms, being material of the highest commercial sensitivity, into a protective framework that offers the OEM no standing, no consent right, no control over who accesses the material, and no remedy in the event of a breach.

In these circumstances, incorporating CACTIS in its current form is not "otherwise appropriate." The sensitivity of the material CACTIS demands is incommensurate with the protections the Code provides. Either CACTIS should be amended to limit what it requires to a level appropriate to the available protections (for example, by permitting encrypted models and limiting format requirements), or incorporation should be deferred until the protective framework is strengthened to a standard commensurate with the sensitivity of the material being disclosed.

5. Request for deferred commencement and OEM consultation

SMA respectfully requests that the Authority:

(a) **Defer commencement of clause 8.73 and the CACTIS-dependent provisions.** Specifically, SMA requests that the Authority defer the commencement of clause 8.73 (incorporation of CACTIS by reference) and 2(10)(a)–(d) of Technical Code A, Schedule 8.3 (the obligations that are measured against CACTIS compliance) for a period of 90 days beyond 1 July 2026, to allow the targeted OEM consultation described below. The

Authority regularly staggers commencement dates within Code amendments and this approach would be consistent with that practice.

(b) **Establish a targeted OEM consultation period.** During the deferral period, the System Operator should be directed to engage directly with major IBR equipment manufacturers operating in the New Zealand market to review and, where necessary, amend the CACTIS technical specifications to ensure they are commercially and technically deliverable. SMA would welcome the opportunity to participate in such a process.

(c) **Allow the remainder of the Code amendment to commence on 1 July 2026 as planned.** Deferral of the CACTIS-dependent provisions would not create a regulatory vacuum. The System Operator's existing connection study processes and Technical Code A requirements would continue to operate. Asset owners would continue to engage with the System Operator on modelling and connection studies under existing arrangements. The only effect of deferral is that the detailed CACTIS specifications would not become binding until they have been confirmed as achievable.

(d) **Ensure the CACTIS is commensurate with the Code's protective framework.** The confidentiality protections in clause 3(2A) of Technical Code A do not provide OEMs with standing to enforce confidentiality, do not require individual undertakings from persons accessing models, do not cascade confidentiality obligations to the System Operator's contractors or advisers, and do not give the OEM any consent right or remedy in the event of a breach. If the CACTIS is to require the provision of unencrypted source-level models, these protections are not adequate. Either the CACTIS should be amended to limit model provision to encrypted, benchmarked models consistent with the protections available, or incorporation should be deferred until the protective framework is strengthened. OEM engagement during the consultation period proposed above would enable this alignment to be addressed.

6. Conclusion

SMA supports the Authority's objectives of promoting reliable electricity supply and ensuring the System Operator has the information needed to manage a power system with increasing IBR penetration.

However, the CACTIS in its current form contains technical specifications that are not achievable without structured OEM engagement and, in some respects, conflict with legitimate intellectual property protections that are standard practice in the global inverter industry. The CACTIS was developed without formal OEM participation, yet its practical operation depends entirely on OEM cooperation. Further, the sensitivity of the material CACTIS requires to be disclosed is incommensurate with the protections available under clause 3(2A) of Technical Code A, which afford the OEM no standing, no consent right, no control over who accesses its intellectual property, and no remedy in the event of a breach.

Clause 8.73 incorporates the CACTIS directly into the Code as a single instrument commencing 1 July 2026. Once incorporated, future amendments may be made through the system operation document amendment process under clauses 7.13 to 7.22, which does not provide the same level of statutory scrutiny as the initial Schedule 2 process. The initial incorporation therefore sets the baseline for what may become a long-lived regulatory instrument. It is essential that this baseline reflects what is deliverable.

SMA submits that incorporating CACTIS in its current form is not “otherwise appropriate” within the meaning of clause 1(d)(iii) of Schedule 2 of the Legislation Act 2019. A short deferral of commencement for the CACTIS-dependent provisions, coupled with targeted OEM engagement, would allow the Authority to achieve its policy objectives on a sound and workable footing and without disrupting the broader Code amendment or the System Operator’s existing processes.

SMA welcomes the opportunity to engage directly with the Authority and the System Operator to develop technical specifications that are both effective and practically deliverable.

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