

SEC Guidance Notes: Technical Specifications and their relationship with the Technical Specifications Applicability Table (TSAT)

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1. Introduction

This Guidance Note is intended to provide readers with an explanation of how to interpret the Technical Specification Applicability Table (TSAT) and how it impacts SEC Parties in relation to Smart Metering installations.

Every Smart Metering Device must comply with the minimum functional requirements as defined in the relevant Technical Specifications in the Smart Energy Code (SEC) subsidiary documents (as indicated in Figure 1).

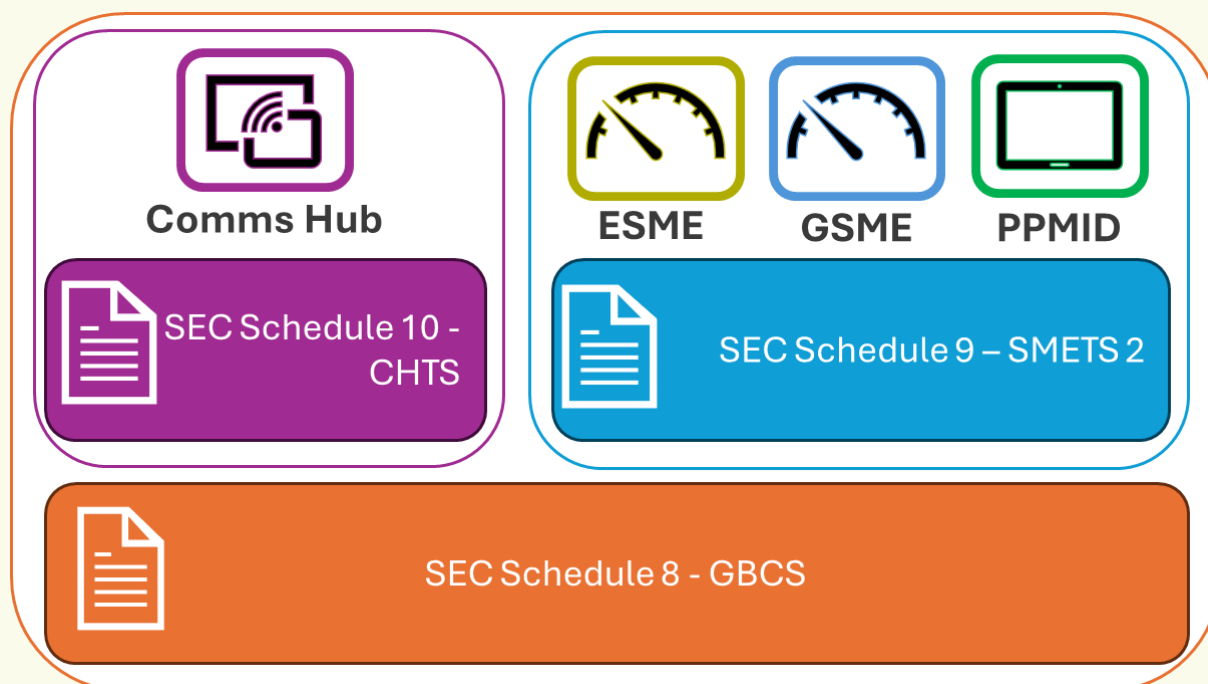


Figure 1 Smart Metering Device Technical Specifications

Comms Hubs must comply with the Communications Hub Technical Specification (CHTS). The Electricity Smart Metering Equipment (ESME), Gas Smart Metering Equipment (GSME) and Prep-Payment Interface Device (PPMID) must all comply with the Smart Metering Equipment Technical Specification (SMETS) version 2.

CHTS and SMETS define the minimum functionality required to be included in Devices that comprise the Smart Metering System, while the Great Britain Companion Specification (GBCS) states how GB smart meters vary from the internationally standardised metering protocols ZigBee and DLMS COSEM (hence companion) which is the technical language that Devices communicate in. The GBCS then applies to the Comms Hub as well as the ESME, GSME and PPMID (and other Devices referenced in SMETS).

The Devices used in smart metering need to comply with the technical specifications in order to interoperate with each other and to meet the requirements for the smart metering service in GB.

The Technical Specifications are not fixed, they evolve over time, and there is by implication a choice over which manufacturers can build to, and as a result there is a mixed population of devices complying with the various versions of the specifications. The rules around dates when Devices complying with the various specifications should be installed and maintained, are set out in TS applicability tables, in the SEC.

2. Background

2.1 Smart Energy Code (SEC)

The requirements relating to the TS Applicability Tables are set out in Section A3.32 of the SEC – ‘The TS Applicability Tables’ located [here](#).

The TS Applicability Table itself is a Schedule 11 of the SEC – ‘Technical Specification Applicability Tables (TSAT)’ located [here](#).

2.2 Purpose

The original policy intent behind the creation of the TSAT was to drive progress in technical specifications, so that energy consumers receive the best experience through new and updated features introduced via updated Technical Specifications and Devices.

3. Key elements of the TSAT

Fundamentally, the TSAT contains a list of Technical Specifications, with associated dates setting out **validity periods** during which Devices can be installed and maintained. The TSAT also sets out **applicability periods** when the supporting GBCS is supported by the relevant version of CHTS or SMETS.

3.1 What is an Installation Validity Period?

An “Installation Validity Period” (IVP) is the period of time during which any Device or apparatus satisfying the requirements of that Version of the Technical Specification may be installed.

An Installation Validity Period:

- (a) commences on the “Installation Start Date” that is identified in relation to that Version of the Technical Specification in the TS Applicability Tables; and
- (b) ends on the “Installation End Date”.

For Smart Metering installs to count towards an Energy Supplier’s roll-out targets, Devices must be installed during the Installation Validity Period stated within the TSAT.

Ofgem have confirmed that what is important in determining whether an install counts towards the roll-out targets is whether a Metering Device is qualifying as a Relevant Smart Metering System on the date of install.

As per the Electricity Supply Standard Consolidated Licence:

Relevant Smart
Metering System

Means, in respect of any Domestic Premises or Designated Premises a system installed at such premises for the purposes of the supply of electricity to those premises which on the Installation Date:

- (a) Consists of an Electricity Meter and any associated or ancillary devices identified in a Version of the ESME Technical Specification which is:
 - i. Within its Installation Validity Period; and
 - ii. The same Version in respect of all such devices;
- (b) As a minimum, has the functional capability specified by and complies with the other requirements of that Version of the ESME Technical Specification; and

(c) Where the premises is a Domestic Premises, except where that Version of the ESME Technical Specification has a Principal Version number of 1, includes a Relevant Communications Hub.

Relevant Communications Hub	Means a Communications Hub which on the date it is installed at the Domestic Premises complies with a Version of the CH Technical Specification which is within its Installation Validity Period.
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No WAN installs count towards the roll-out targets as long as the install and leave process has been followed, and an install has not been attempted in a known No WAN area.

Refurbished Devices (those that have been previously installed at a premises) will count towards roll-out targets so long as they are installed within their Installation Validity Period.

If a Device is installed after the stated Installation End Date and the TSAT is subsequently amended via SEC Modification to extend that End Date, a retrospective adjustment to the roll-out targets will be made.

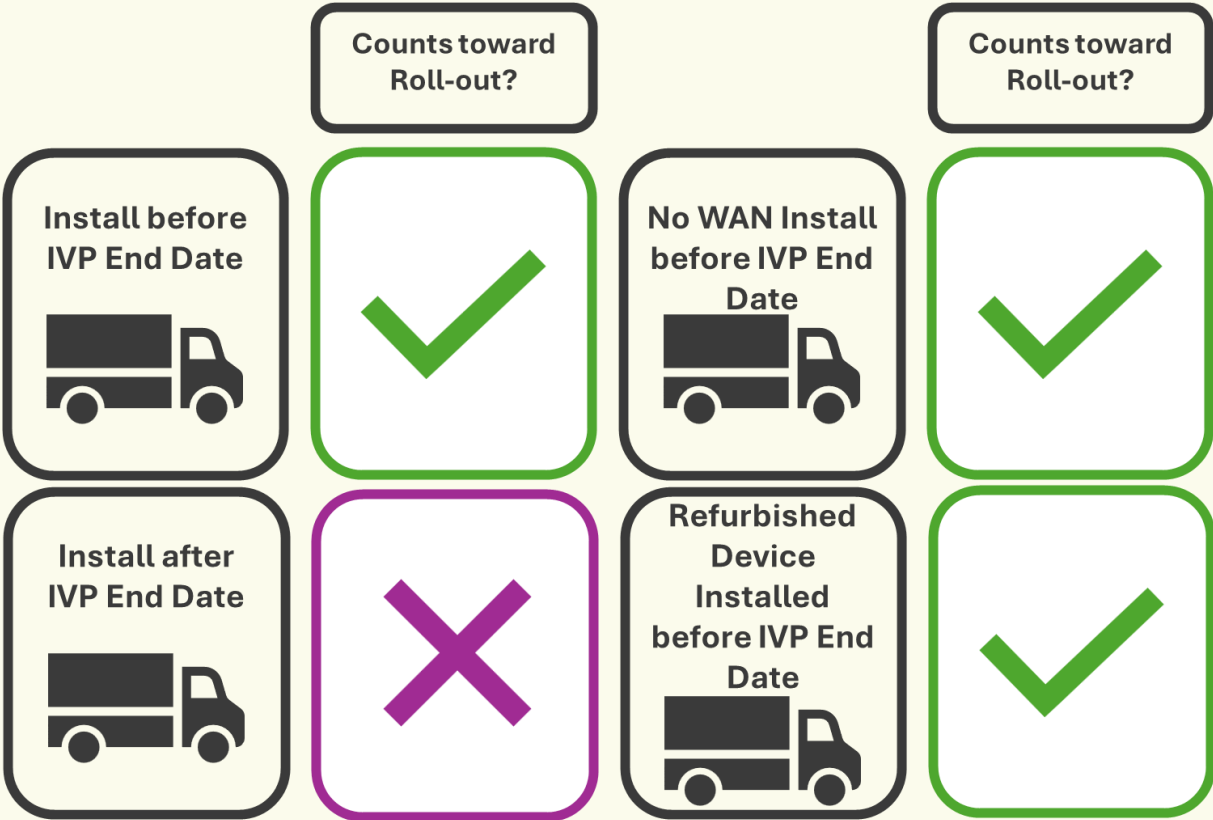


Figure 2 TSAT Installation Validity Period compliance impact on roll-out targets

3.2 What is a Maintenance Validity Period?

A “Maintenance Validity Period” (MVP) means:

- (a) the period of time during which a Device or other apparatus can be operated and deemed compliant with the specific relevant Technical Specification. Devices outside of MVP need to be upgraded to be part of a valid MVP.

(b) the period of time during which a User can interface to the DCC in accordance with that Version of the DCC User Interface Specification. This refers to the DUIS Maintenance Validity Period Table within the TSAT document. It enables end dating of a version of the DUIS document

Section 33.15¹ of the Gas Supply Standard Consolidated Licence, 39.15 of the Electricity Supply Standard Consolidated Licence Conditions and Section 17.21 of the Smart Meter Communication Licence states that the licensee must take all reasonable steps to ensure that the Smart Metering System is maintained so that at all times it satisfies the requirements of a Version of the relevant Technical Specification it is within its Maintenance Validity Period.

This means that it is part of the Licence Condition to maintain installed Devices in line with the TSAT.

3.3 What is an Applicability Period?

An “Applicability Period” is the period of time that a version of the GBCS is relevant to a version of the other Technical Specifications.

3.4 Structure of SEC Schedule 11 – the Technical Specification Applicability Tables (TSAT)

Schedule 11 is comprised of several tables.

TS Version Lookup Table

Technical Specification Cross Reference	SMETS1 1 February 2018	SMETS2 1 February 2018	SMETS2 8 November 2018	SMETS2 4 July 2019	SMETS2 29 November 2020	SMETS2 4 November 2021	SMETS2 3 November 2022	SMETS2 2 November 2023
GSMETS	(GSMS) 1.2	2.0	3.1	4.2	4.3	4.3	4.4	4.5
ESMETS	(ESMS) 1.2	2.0	3.1	4.2	5.0	5.1	5.2	5.2
IHDTS	1.2	2.0	3.1	4.2	4.3	4.3	4.4	4.4
PPMIDTS	N/A	2.0	3.1	4.2	4.3	4.4	4.5	4.5
HCALCSTS	N/A	2.0	3.1	4.2	5.0	5.1	5.1	5.1
SAPCTS	N/A	N/A	N/A	N/A	5.0	5.0	5.1	5.1

The table indicates which device version is contained in which version of SMETS. A major functional change is indicated by an increment by a whole number, a minor functional change is indicated by a decimal increase.

TS Applicability Tables

The majority of the rest of the document is comprised of individual Applicability Tables for different device types. The first three tables cover SMETS1 devices, however as the installation date for these devices expired in 2019, this guidance note is for SMETS2 devices only.

The rest of the tables relate to individual SMETS2 devices, and Section 4 of this guidance note explains how to interpret the tables.

¹ The Licence Conditions can be downloaded from <https://www.ofgem.gov.uk/energy-policy-and-regulation/industry-licensing/licences-and-licence-conditions>

4. Worked Examples

The following examples are based on data in version 24.0 of the TSAT.

4.1 EXAMPLE 1: GBCS 3.2 installation

This example considers how the TSAT supports the installation of a smart metering system comprising GBCS 3.2 compliant gas meter and electricity meter, a GBCS 3.2 compliant pre-payment in-home display / PPMID, and a GBCS 3.2 compliant Comms Hub. This installation takes place on 1 September 2024.

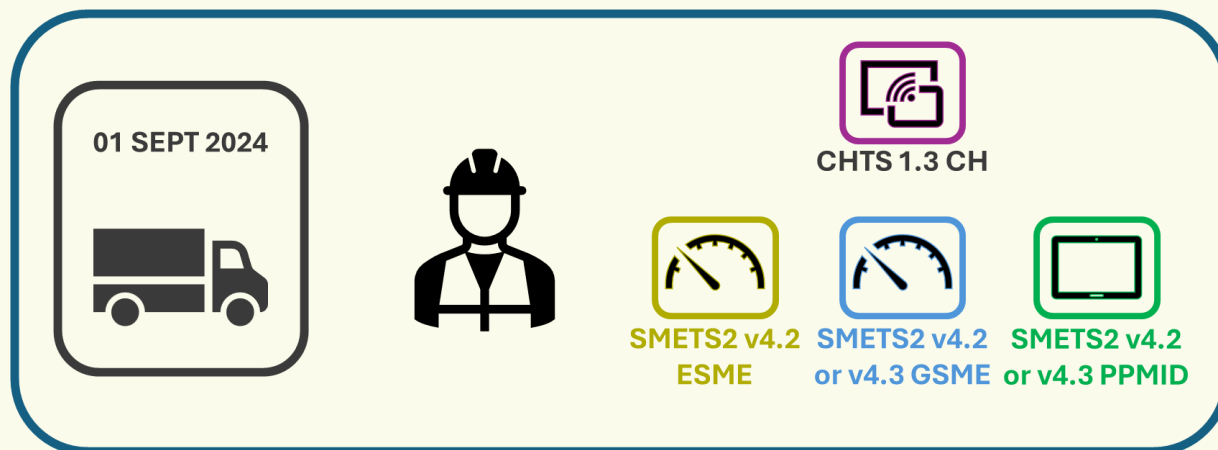


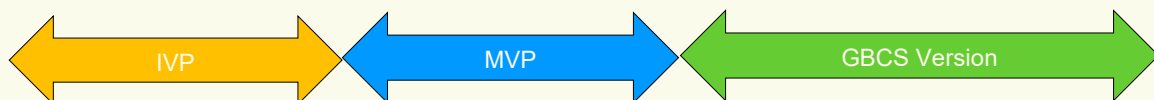
Figure 3 GBCS 3.2 and TSAT compliant Smart Meter install on 01 September 2024

There are two SMETS2 versions applicable for GBCS 3.2 for the GSME and PPMID.

An installing Supplier, or their designated body, must ensure that, in order to count towards a Supplier's roll-out target, the electricity meter, gas-meter and the in-home display or PPMID must both comply with either SMETS2 version 4.2 or SMETS2 version 4.3.

There is only one compliant SMETS2 version for the electricity meter (SMETS2 v4.2), and one for CHTS version for the Comms Hub (CHTS v1.3).

The installer must ensure that the applicability periods for these SMETS and CHTS versions are valid. As the Installation Start Dates for all of these GBCS 3.2 devices are in the past, and the End Dates are all "Not Determined" then the installation of these GBCS 3.2 compliant Devices can go ahead, in the knowledge that they will form a qualifying Relevant Smart Metering System and so count towards Suppliers' roll-out targets.



	CHTS / SMETS Version	Installation Start Date	Installation End Date	Maintenance Start Date	Maintenance End Date	Relevant GBCS Version	Applicability Period Start Date	Applicability Period End Date
CH	CHTS 1.3	29/11/19	Not Determined	29/11/19	Not Determined	3.2	29/11/19	Not determined
ESME	SMETS 4.2	29/11/19	Not Determined	29/11/19	Not Determined	3.2	29/11/19	Not determined
GSME	SMETS 4.2	29/11/19	Not Determined	29/11/19	Not Determined	3.2	29/11/19	Not determined
GSME	SMETS 4.3	29/11/20	Not Determined	29/11/20	Not Determined	3.2	29/11/20	Not Determined
PPMID	SMETS 4.2	29/11/19	Not Determined	29/11/19	Not Determined	3.2	29/11/19	Not determined
PPMID	SMETS 4.3	29/11/20	Not Determined	29/11/20	Not Determined	3.2	29/11/20	Not Determined

Table 1 Consolidated view of GBCS 3.2 Compliant Devices

4.2 EXAMPLE 2: GBCS 2.1 installation

This example considers a similar scenario, with an installation of a full smart metering system (including electricity meter, gas meter, Comms Hub and pre-payment in-home display), on the same day – 1 September 2024.

However, in this case, the installation would include GBCS 2.1 devices which comply with SMETS2 version 3.1, and a Comms Hub complying with CHTS version 1.1.

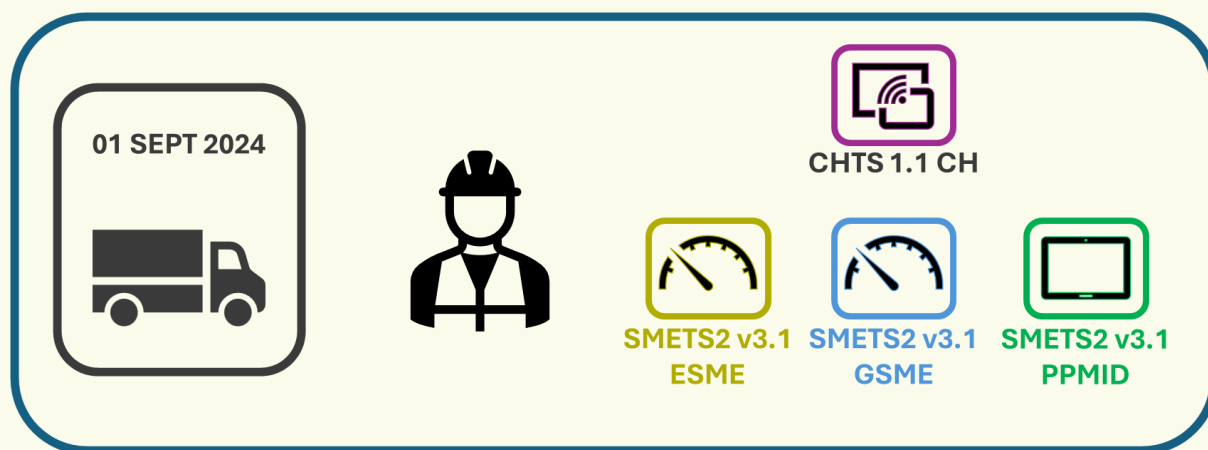
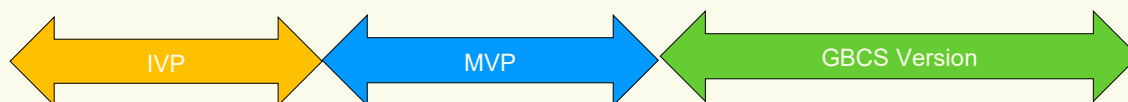


Figure 4 GBCS 2.1 compliant, but non-TSAT compliant Smart Meter install on 01 September 2024

Table 2 highlights the relevant dates for Devices compatible with GBCS 2.1.



	CHTS / SMETS Version	Installation Start Date	Installation End Date	Maintenance Start Date	Maintenance End Date	Relevant GBCS Version	Applicability Period Start Date	Applicability Period End Date
CH	CHTS 1.1	28/10/18	30/04/26	28/10/18	31/05/24	2.1	28/10/18	Not determined
ESME	SMETS 3.1	08/11/18	27/04/24	08/11/18	Not determined	2.1	28/10/18	Not determined
GSME	SMETS 3.1	08/11/18	27/04/24	08/11/18	Not determined	2.1	28/10/18	Not determined
PPMID	SMETS 3.1	08/11/18	27/04/24	08/11/18	Not determined	2.1	28/10/18	Not determined

Table 2 Consolidated view of GBCS 2.1 Compliant Devices

The use of GBCS 2.1 compliant Devices is different as the ESME, GSME and PPMID have Installation End dates in the past, while the CHTS has installation end-date in 2026. The CH also has an expired maintenance end date.

The impact of these dates, and what they would mean for an installer, and the support this installation would receive, is explained in the following diagram.

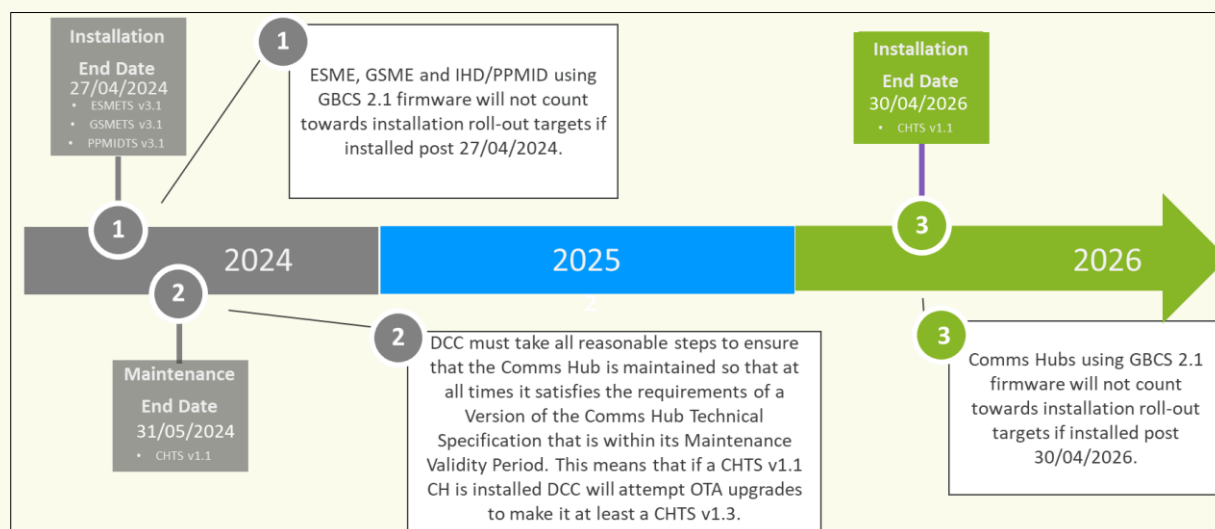


Figure 5 TSAT example diagram

As the installation of this smart metering system includes Devices which are outside of the installation validity period then it would not count towards an Energy Suppliers' roll-out targets.

Installation of a smart metering system with this permutation of Devices is not advised. Not only is it non-compliant with the SEC, it also increases the likelihood that the smart metering system will encounter issues which may adversely impact consumers' experiences.

4.3 EXAMPLE 3: mixed GBCS 2.1 and GBCS 3.2 installation

Example 2 (above) sets out where an installation with a GBCS 2.1 compliant Comms Hub would not count towards Energy Suppliers' roll-out targets.

Example 3 sets out a scenario where a GBCS 2.1 compliant Comms Hub can be part of a smart metering system that would count towards Energy Suppliers' roll-out targets.

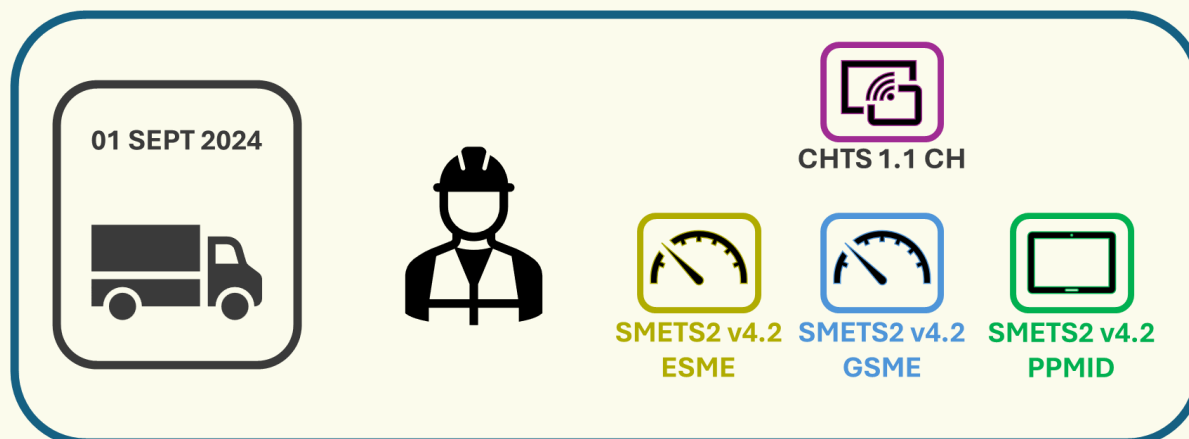


Figure 6 GBCS 2.1, 3.2 and TSAT compliant Smart Meter install on 01 September 2024

In this scenario, the Comms Hub is compliant with GBCS 2.1 and is being installed alongside an electricity meter, gas meter and pre-payment in-home display which comply with GBCS 3.2, as indicated by Table 3 below.

IVP MVP GBCS Version								
	CHTS / SMETS Version	Installation Start Date	Installation End Date	Maintenance Start Date	Maintenance End Date	Relevant GBCS Version	Applicability Period Start Date	Applicability Period End Date
CH	CHTS 1.1	28/10/18	30/04/26	28/10/18	31/05/24	2.1	28/10/18	Not determined
ESME	SMETS 4.2	29/11/19	Not Determined	29/11/19	Not determined	3.2	29/11/19	Not determined
GSME	SMETS 4.2	29/11/19	Not Determined	29/11/19	Not determined	3.2	29/11/19	Not determined
PPMID	SMETS 4.2	29/11/19	Not Determined	29/11/19	Not determined	3.2	29/11/19	Not determined

Table 3 Consolidated view of GBCS 2.1 CH and GBCS 3.2 Compliant Devices

Should the combination of Devices indicated in Table 3 be installed, the smart metering system will form a Relevant Smart Metering System and hence be included in Supplier roll-out targets.

5. TSAT relationship with the Central Product List

The Central Product List ([CPL](#)) contains a list of all Smart Metering Devices that are eligible for install in Great Britain.

For each Device on the list there is a field “SMETS_CHTS_Version” and “GBCS_Version” that corresponds to the SMETS and CHTS version in the TSAT table. The SMETS_CHTS_Version is not broken down to the same detail for SMETS Devices, the mapping is provided in Table 4 and 5 below. It is a 1:1 mapping for CHTS and GBCS version.

For example, the Landis+Gyr Model 6 Single phase ESME has a SMETS version of 4.2 and GBCS version of 3.2 within the CPL, hence is within the IVP and MVP range for GBCS 3.2 Devices shown in Table 1 above.

SMETS_CHTS_VERSION	GSMSTS	ESMSTS	IHDTS
SMETS V1.2	✓	✓	✓

Table 4 Mapping of CPL SMETS_CHTS_VERSION to TSAT Device for SMETS1

SMETS_CHTS_VERSION	GSMETS	ESMETS	IHDTS	PPMIDTS	HCALCSTS	SAPCTS
SMETS V2.0	✓	✓	✓	✓	✓	✗
SMETS V3.1	✓	✓	✓	✓	✓	✗
SMETS V4.2	✓	✓	✓	✓	✓	✗
SMETS V4.3	✓	✗	✓	✓	✗	✗
SMETS V4.4	✓	✗	✓	✓	✗	✗
SMETS V4.5	✓	✓	✗	✓	✗	✗
SMETS V5.0	✗	✓	✗	✗	✓	✓
SMETS V5.1	✗	✓	✗	✗	✓	✓
SMETS V5.2	✗	✓	✗	✗	✗	✗

Table 5 Mapping of CPL SMETS_CHTS_VERSION to TSAT Device for SMETS2

6. TSAT Visualisation Diagrams

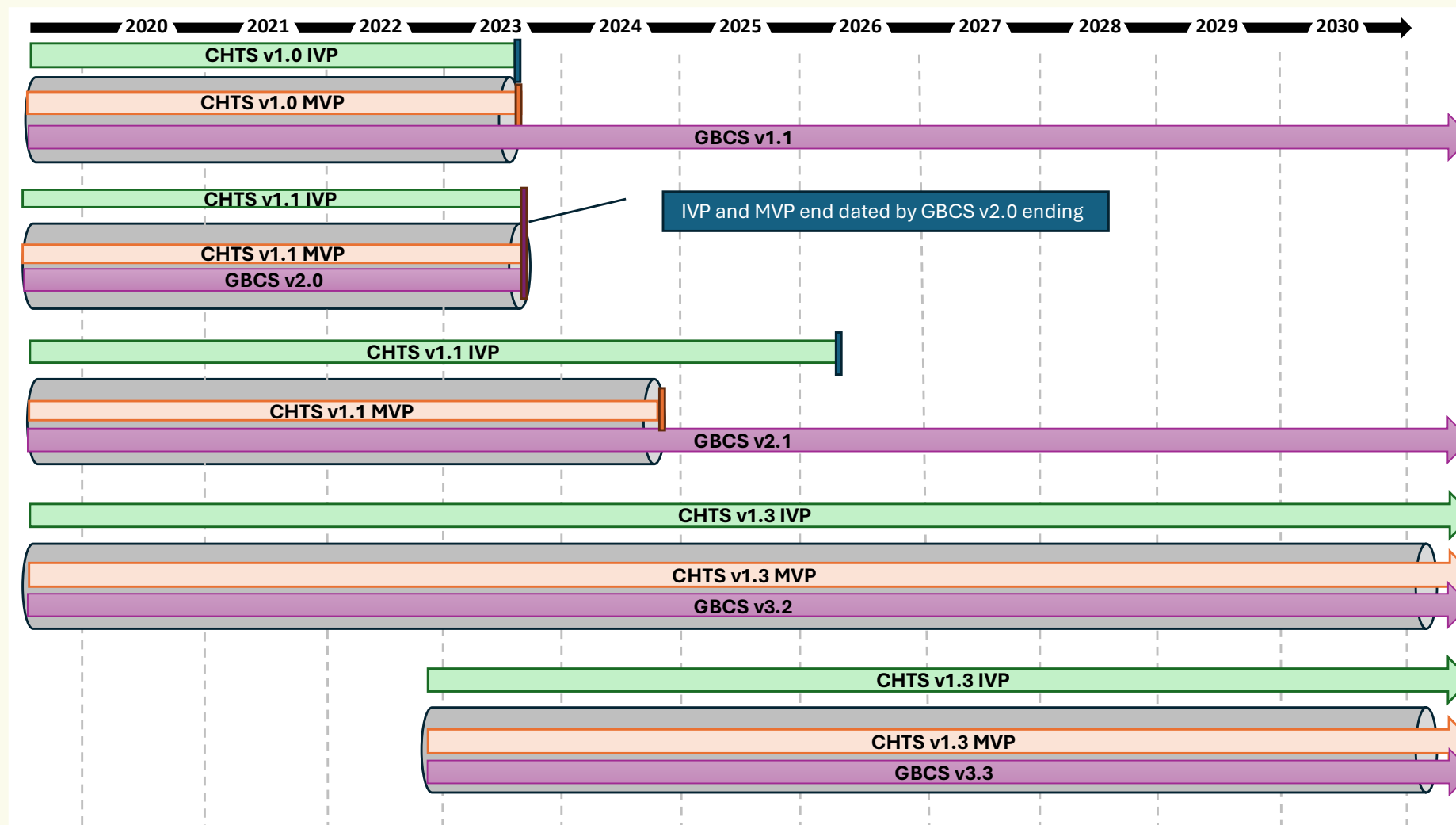


Figure 7 CHTS Visualisation Diagram (1/2)

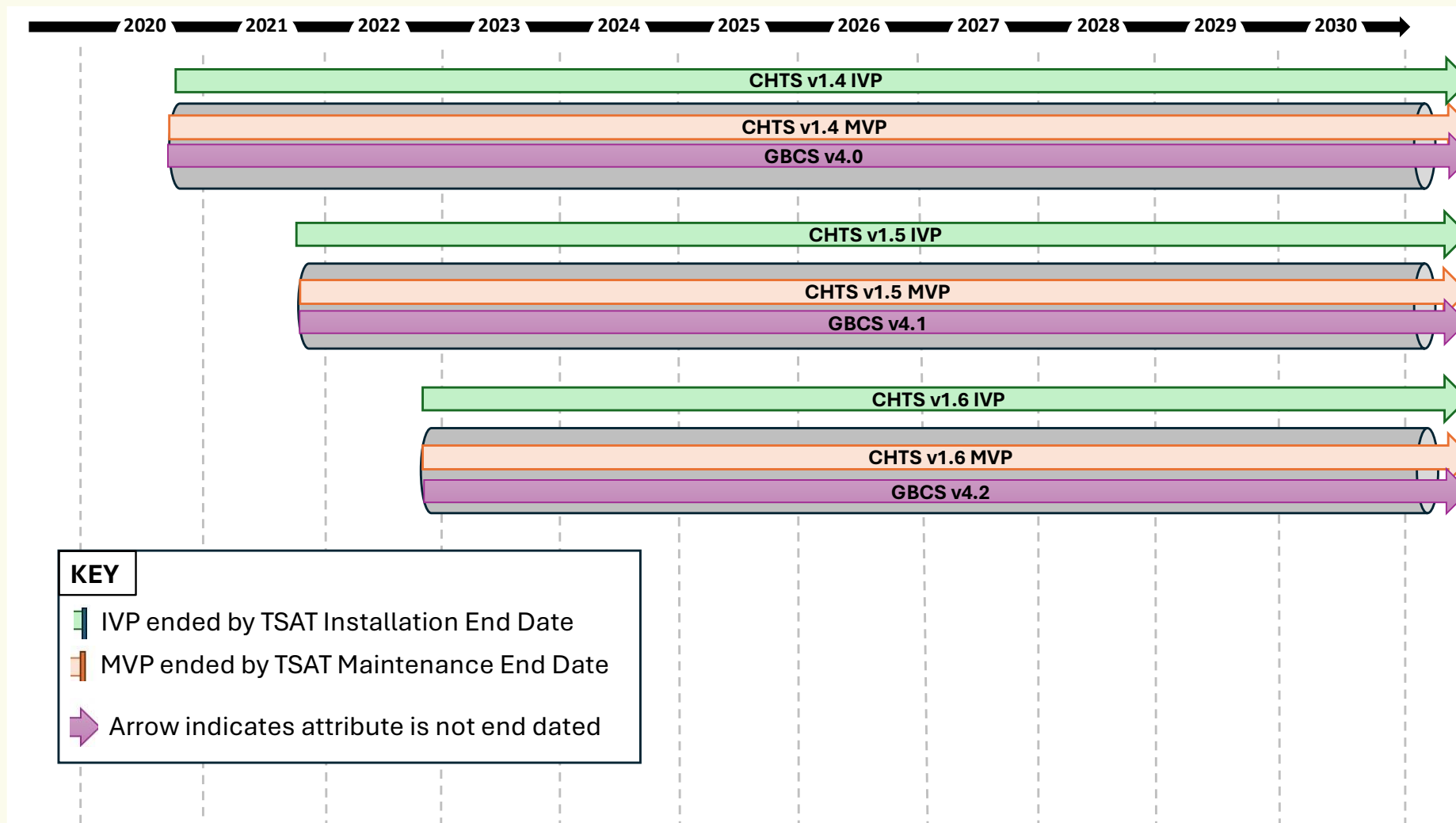


Figure 8 CHTS Visualisation Diagram (2/2)

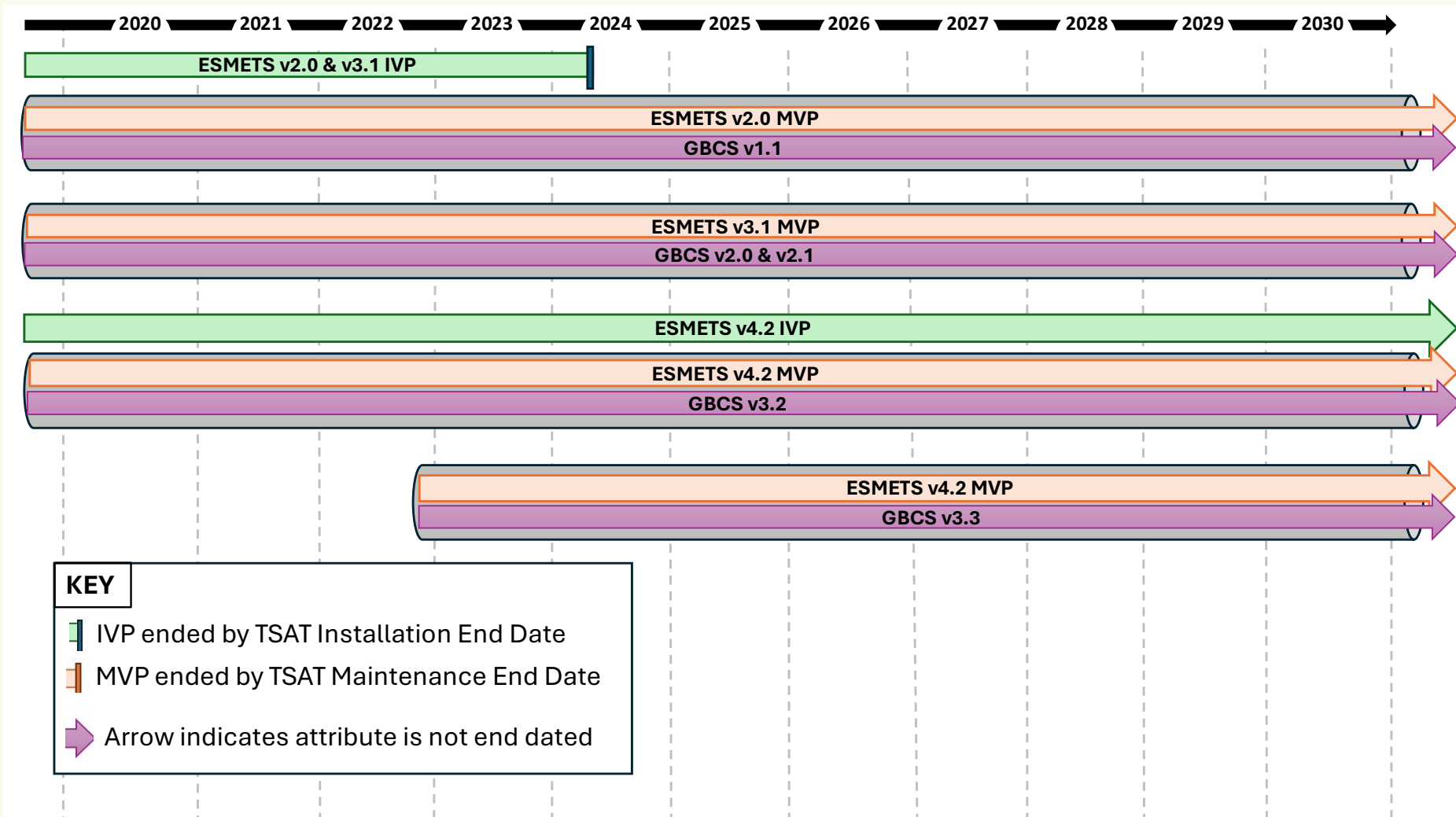


Figure 9 ESMETS Visualisation Diagram (1/2)

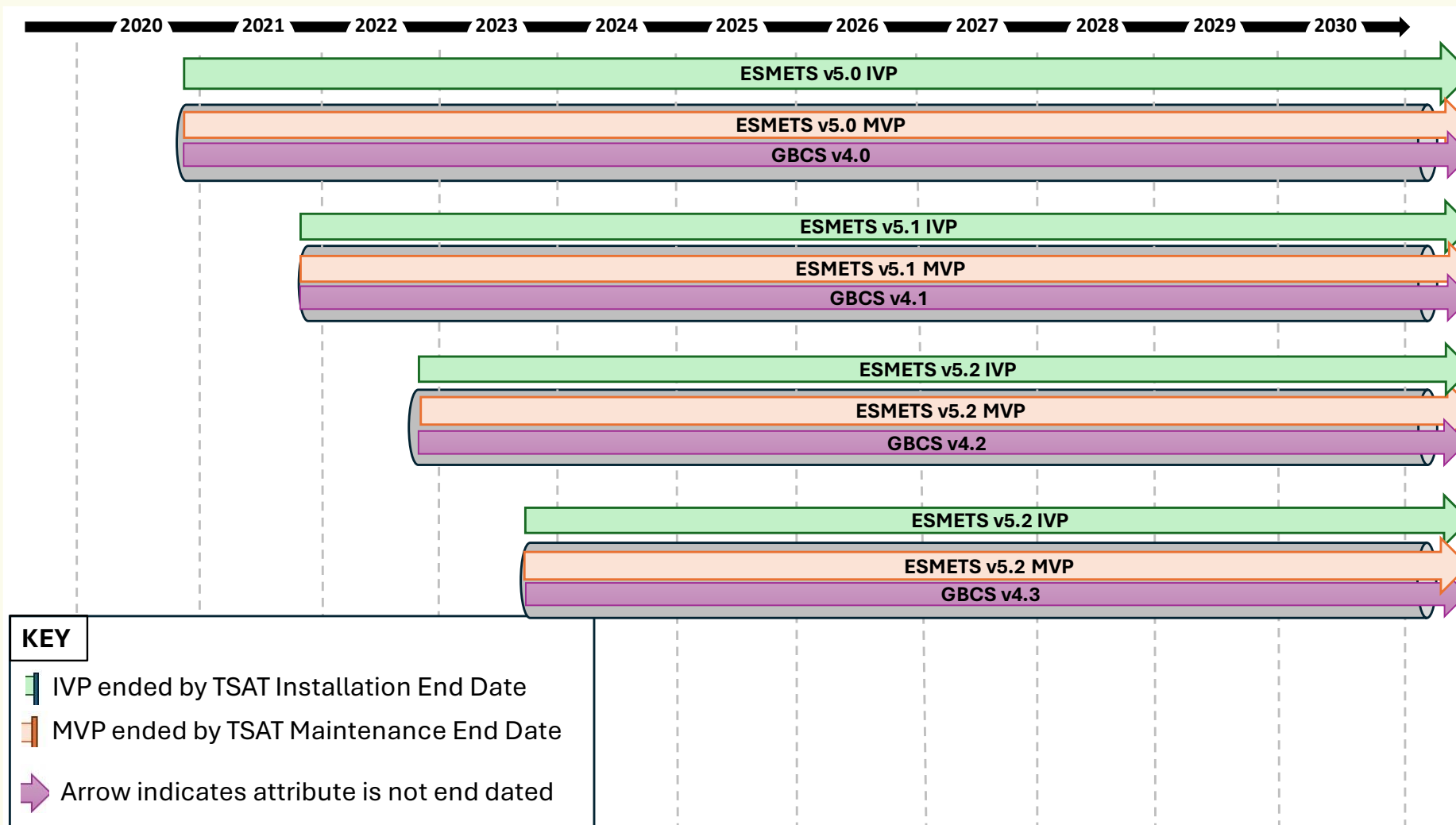


Figure 10 ESMETS Visualisation Diagram (2/2)

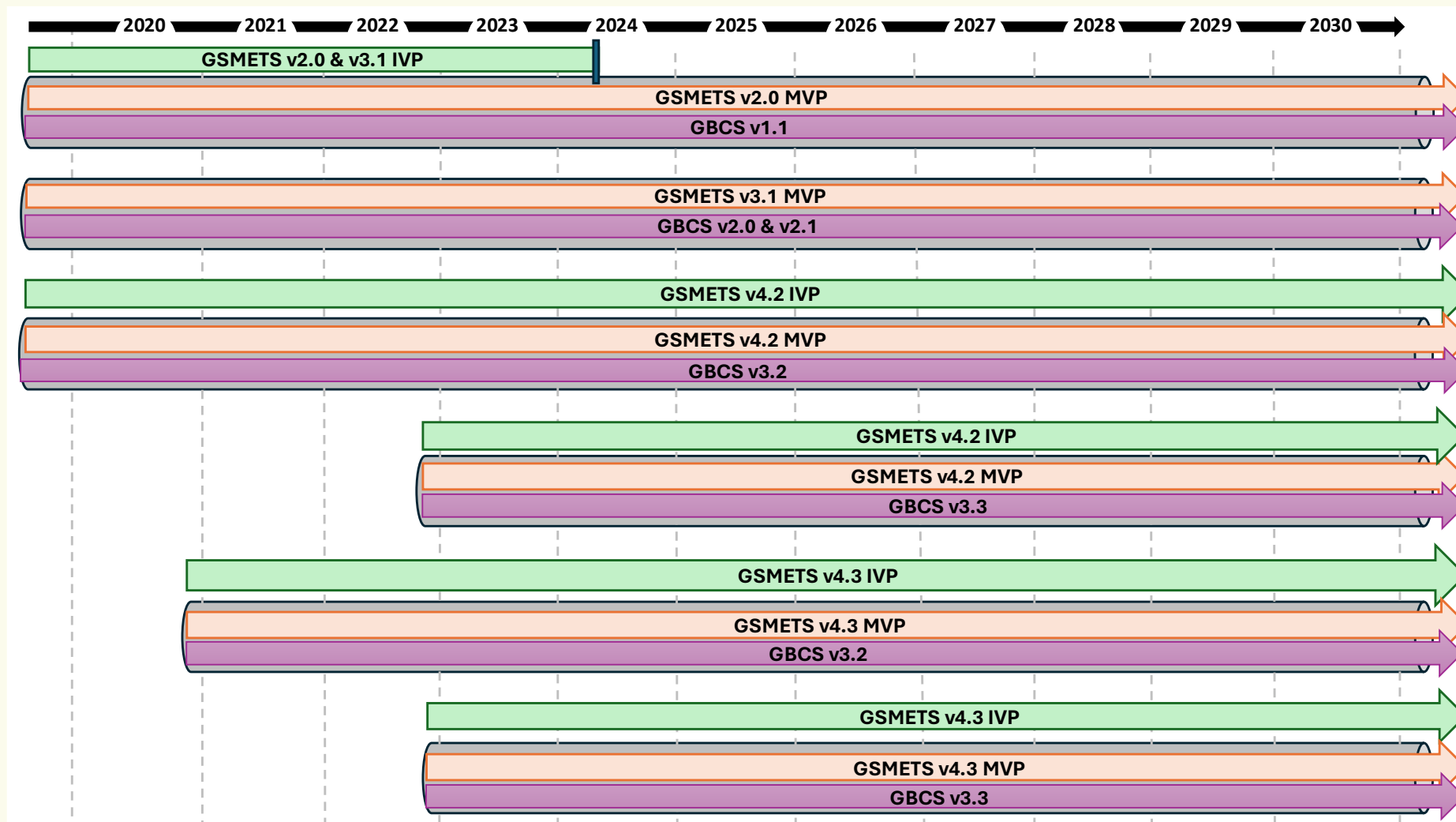


Figure 11 GSMETS Visualisation Diagram (1/2)

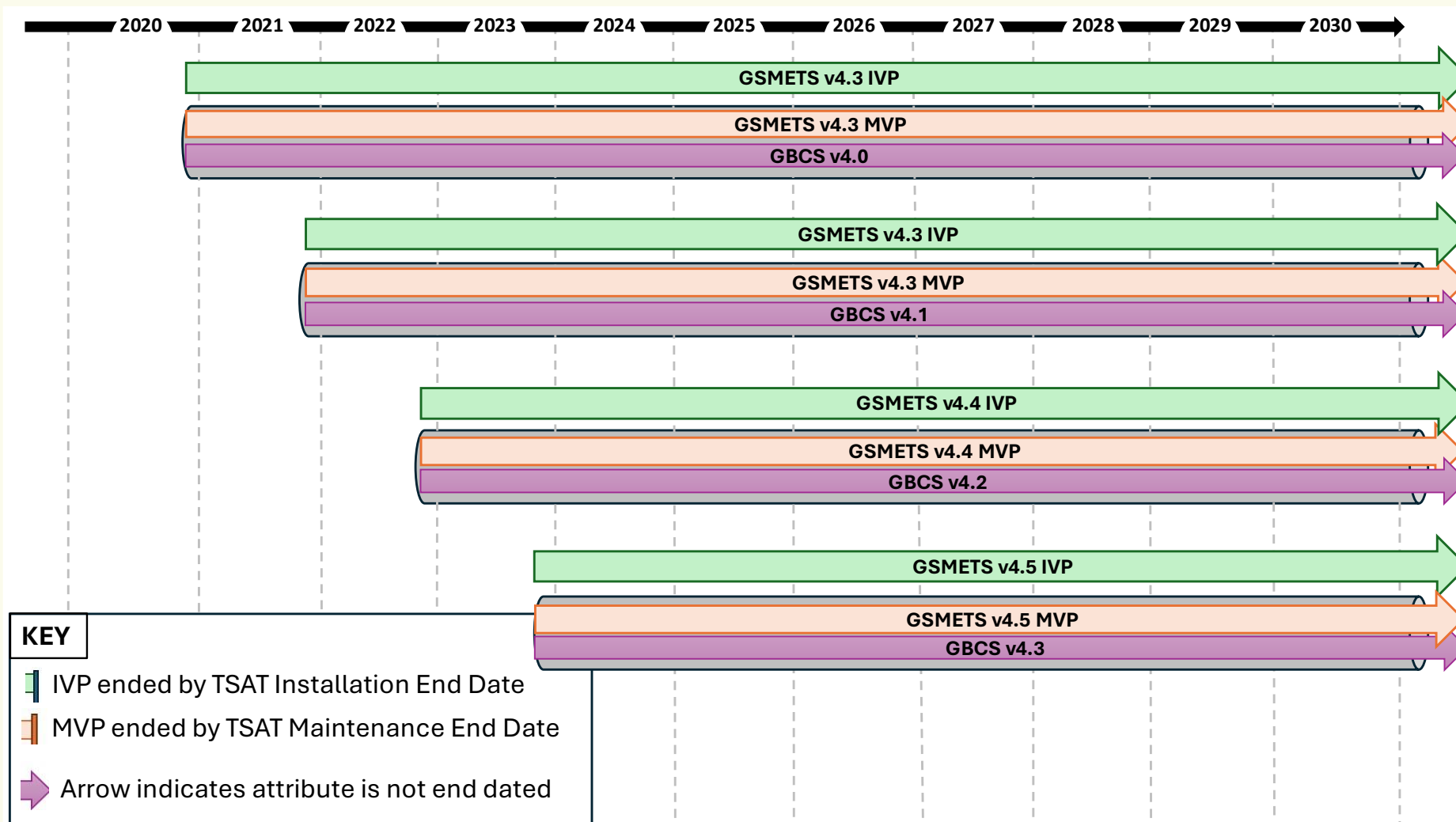


Figure 12 GSMETS Visualisation Diagram (2/2)

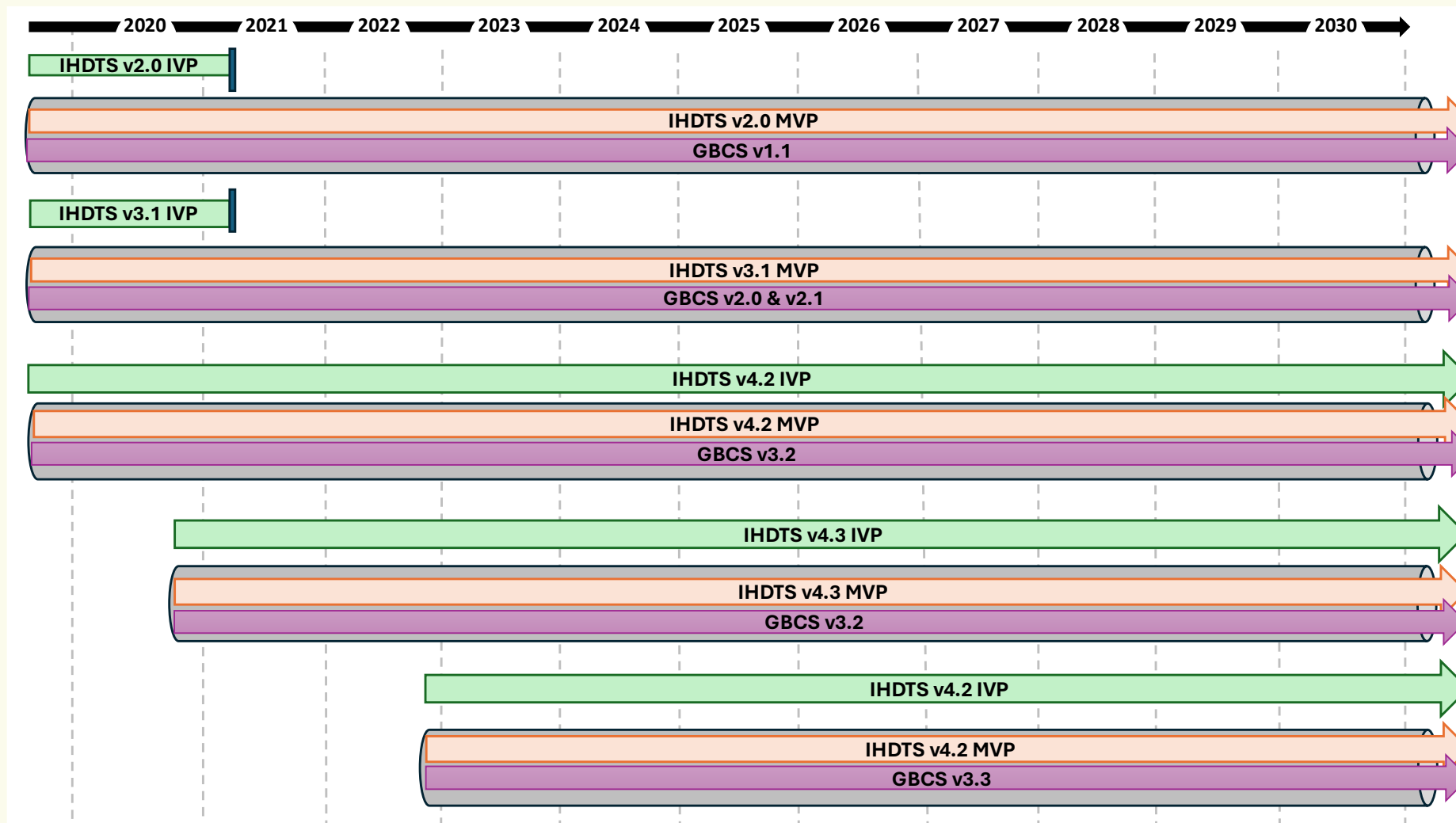


Figure 13 IHDTS Visualisation Diagram (1/2)

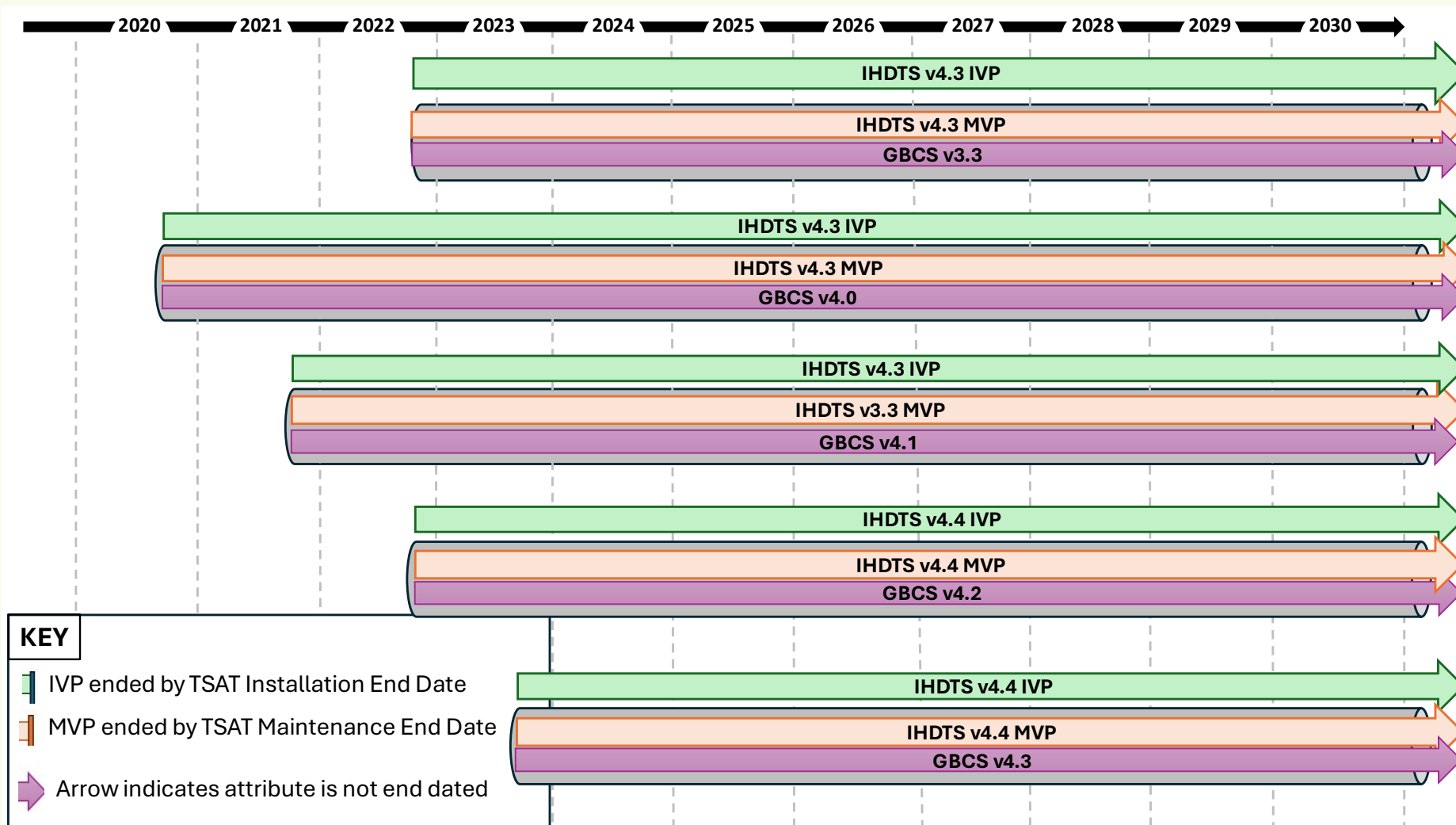


Figure 14 IHDTS Visualisation Diagram (2/2)

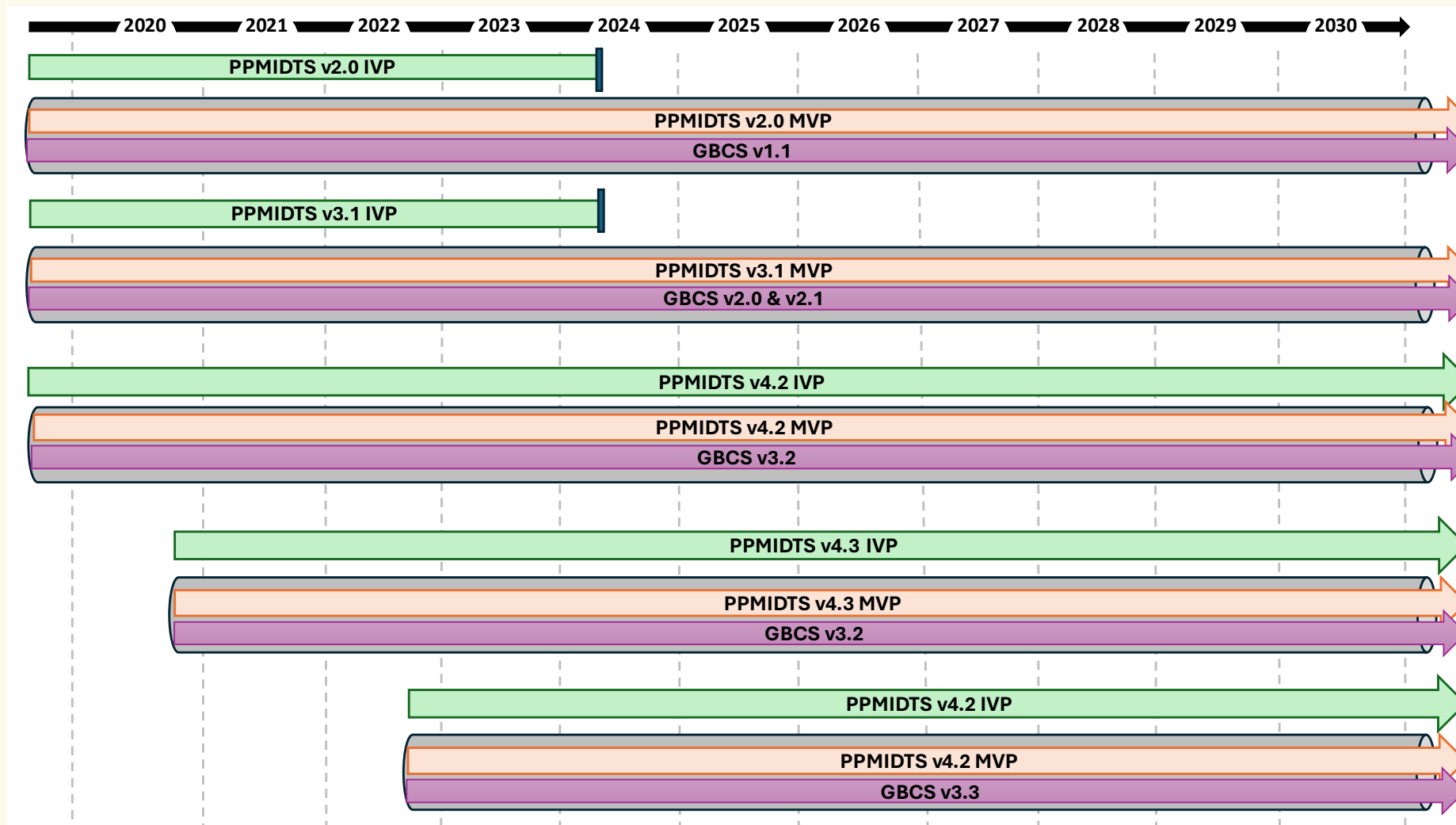


Figure 15 PPMIDTS Visualisation Diagram (1/2)

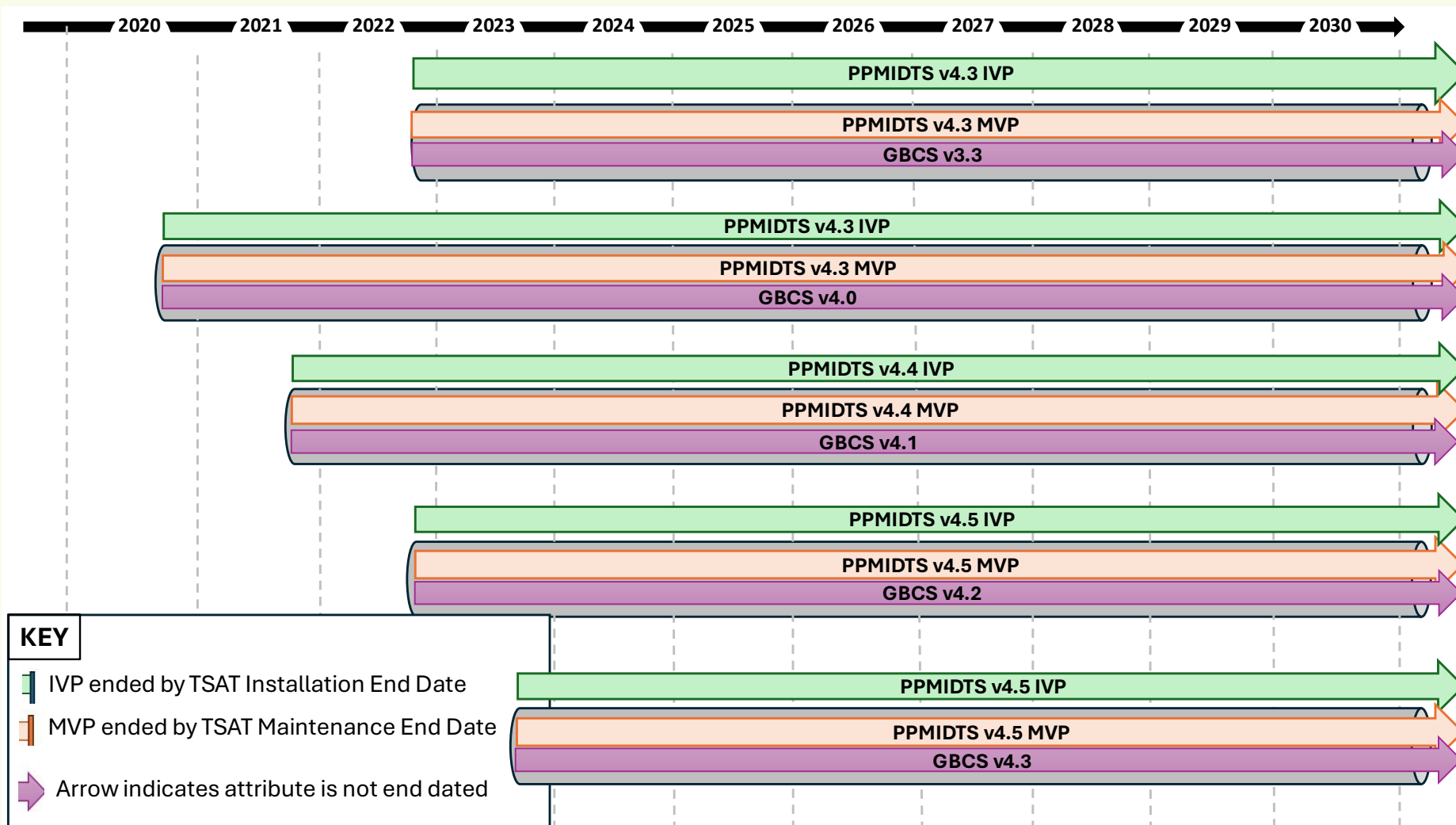


Figure 16 PPMIDTS Visualisation Diagram (2/2)

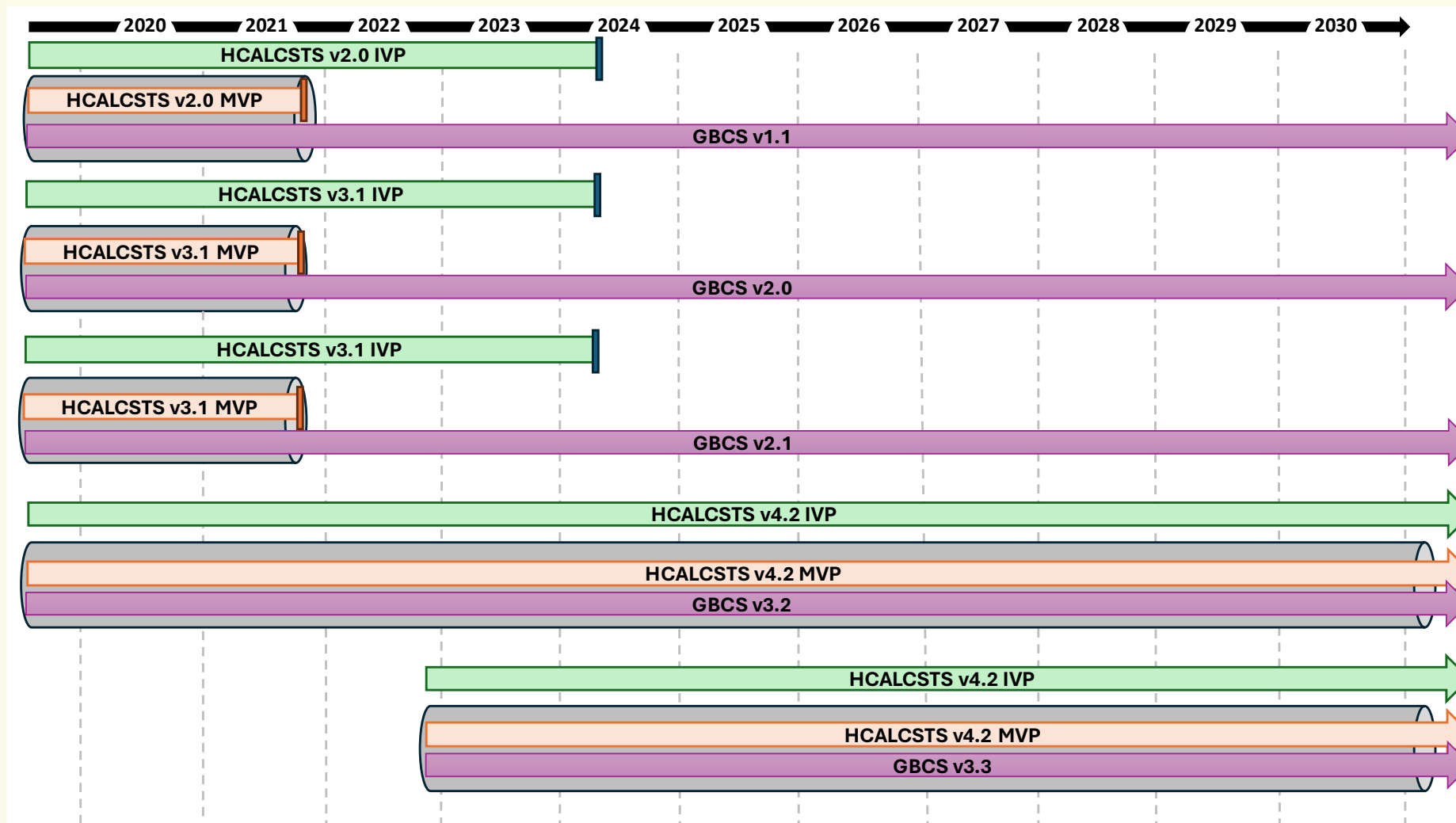


Figure 17 HCALCSTS Visualisation Diagram (1/2)

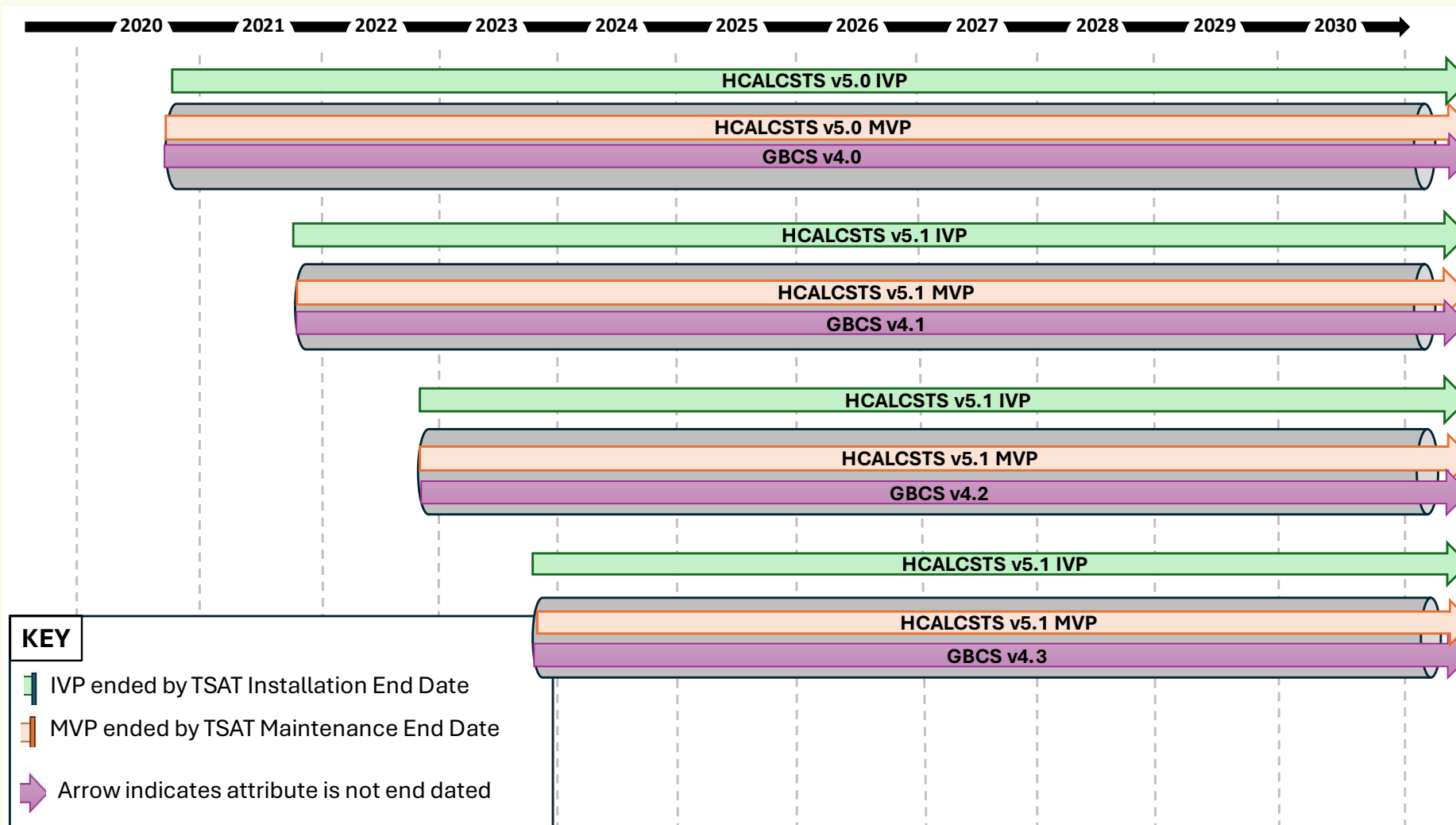


Figure 18 HCALCSTS Visualisation Diagram (2/2)

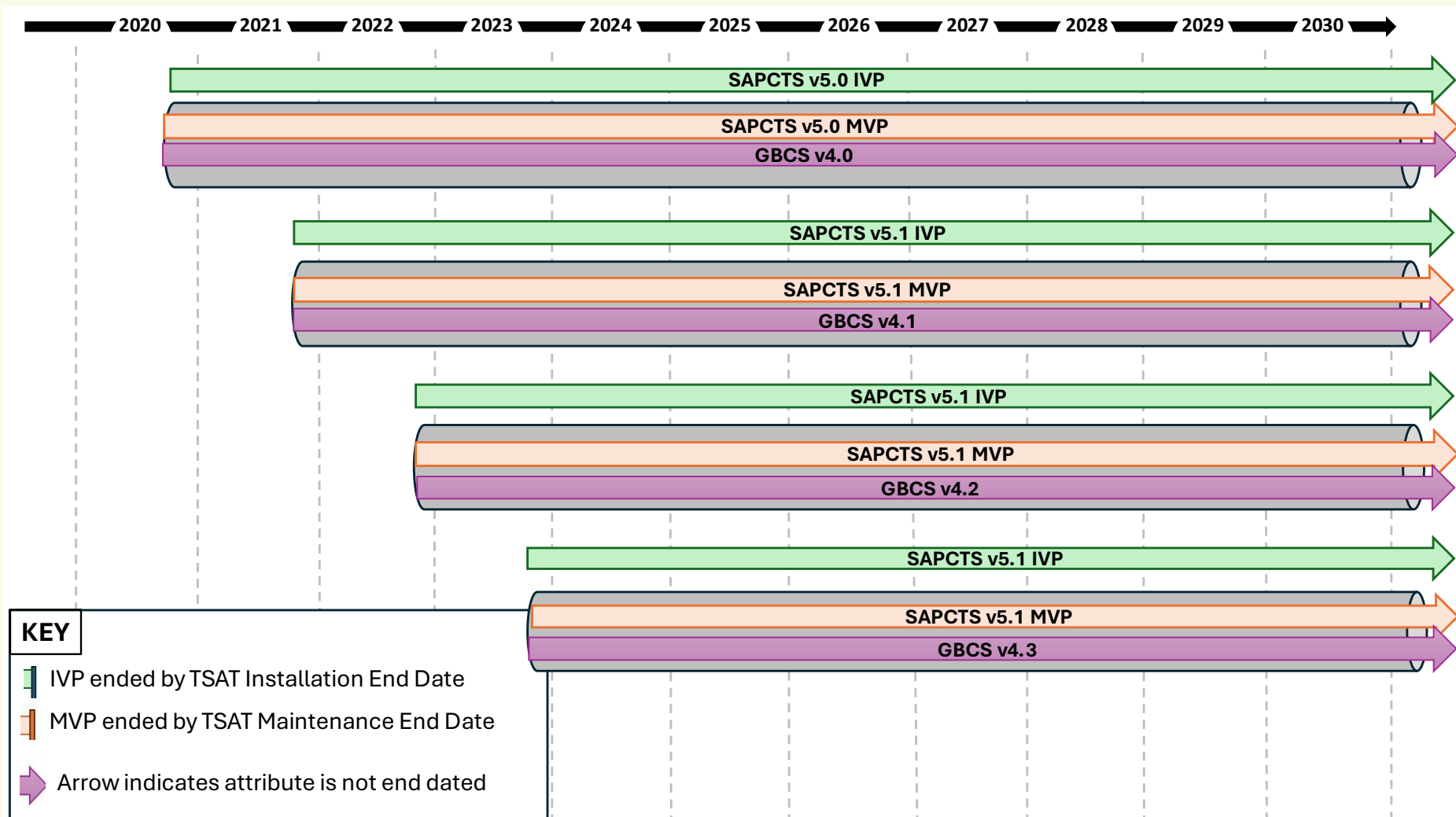


Figure 19 SAPCTS Visualisation Diagram