ESSENTIAL SERVICES COMMISSION

# Electricity Distribution Code Review – Technical Standards

Draft decision briefing

16 Dec 2019 and 13 Jan 2020

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# Welcome

Aaron Yuen

Senior Regulatory Manager,

Energy Reform and Analysis

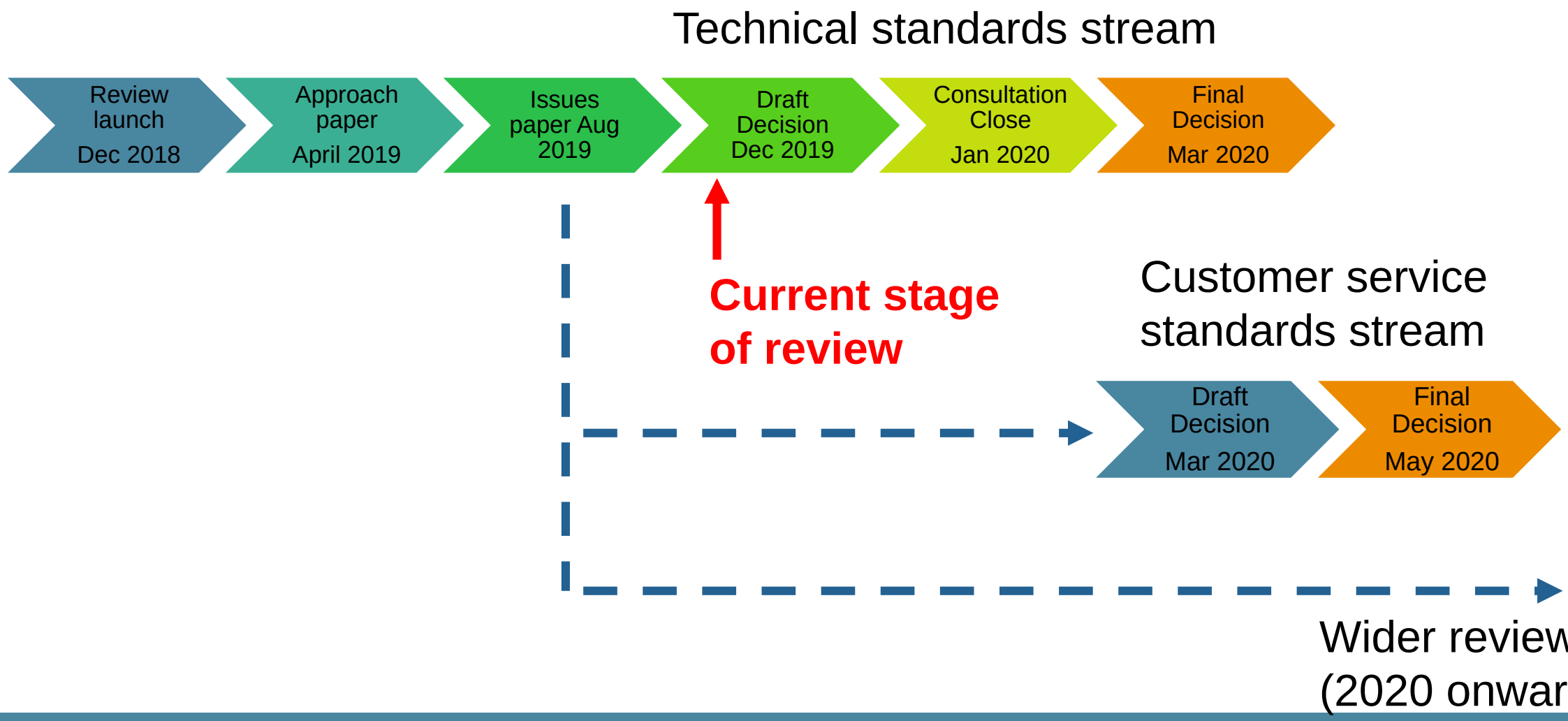
# Today’s agenda

| Time | Item |
|---|---|
| 3:30 PM | Welcome and introductions |
| 3:35 PM | Today’s purpose and the Electricity Distribution Code |
| 3:40 PM | Draft decision presentation |
| 4:05 PM | Q & A |
| 4:25 PM | Next steps |
| 4:30 PM | Close |

# Today’s purpose

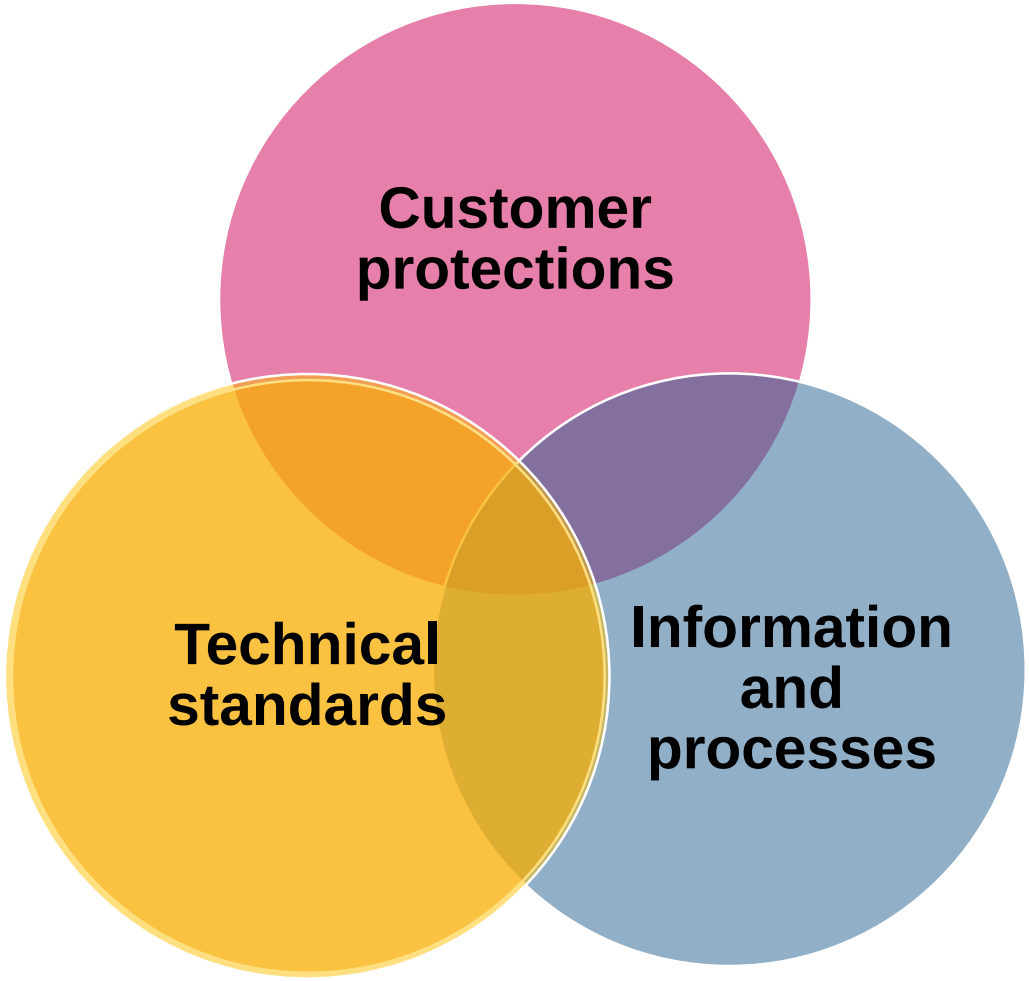
- Provide an overview on our draft decision
- Project status and next steps
- Stakeholder Q & A on our draft decision

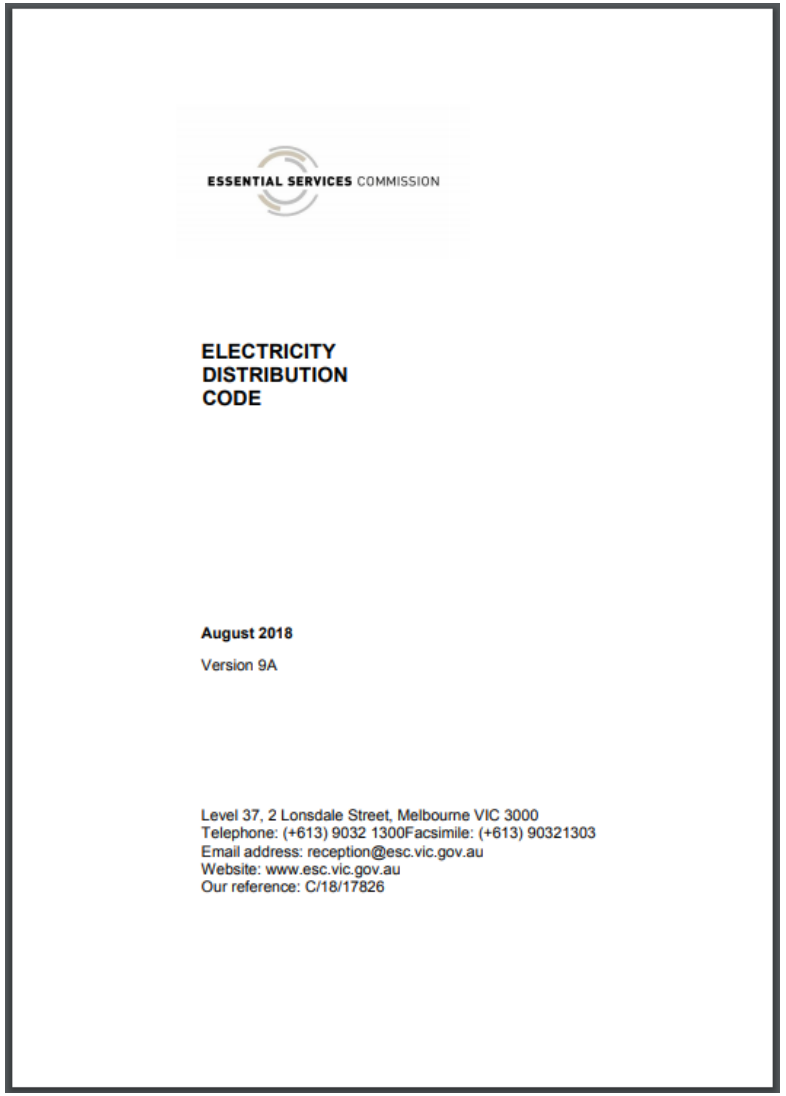
# Status of the code review



# Electricity Distribution Code

The Electricity Distribution Code (EDC) is…

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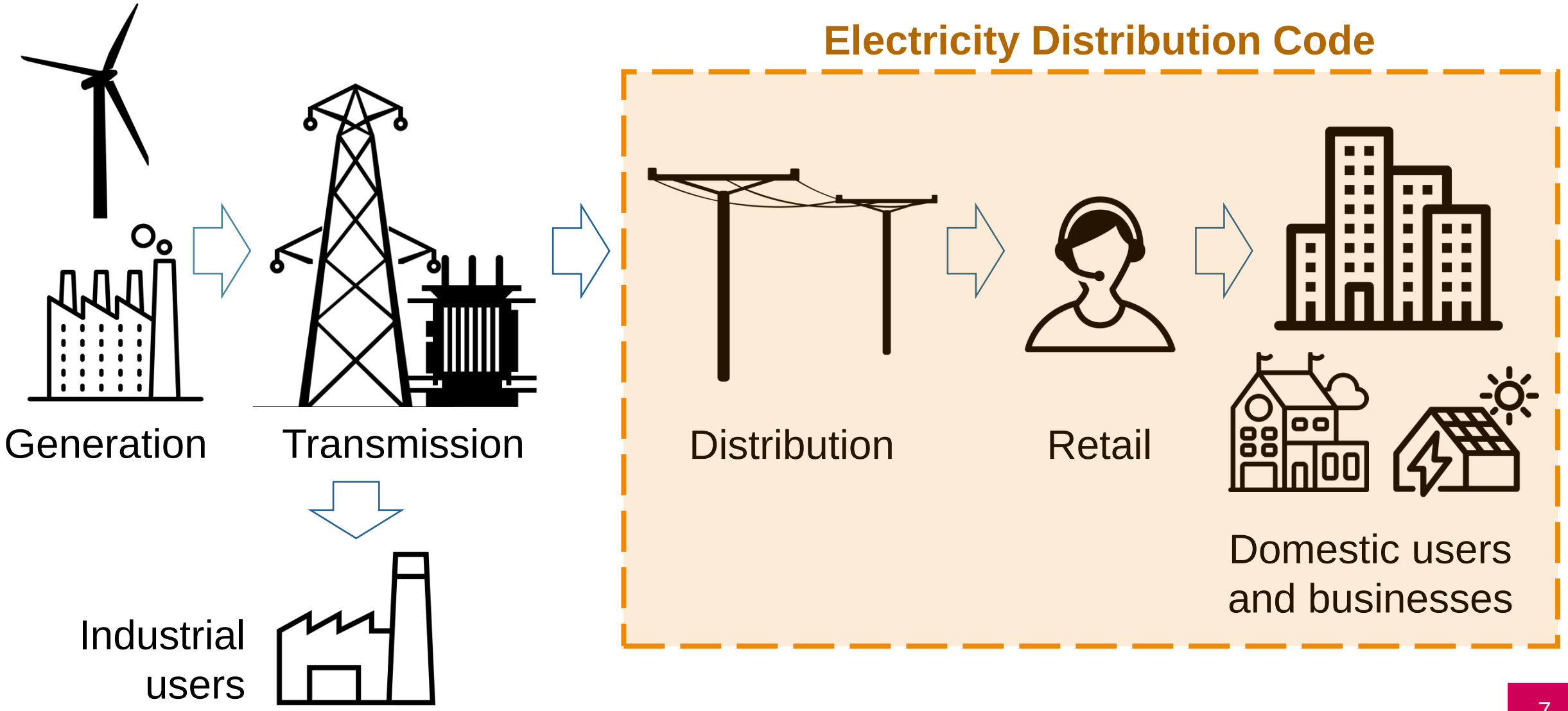
ELECTRICITY DISTRIBUTION CODE

August 2018

Version 9A

Level 37, 2 Lonsdale Street, Melbourne VIC 3000
Telephone: (+613) 9032 1300Facsimile: (+613) 90321303
Email address: reception@esc.vic.gov.au
Website: www.esc.vic.gov.au
Our reference: C/18/17826

# Electricity Distribution Code – Where it applies



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# Speaker

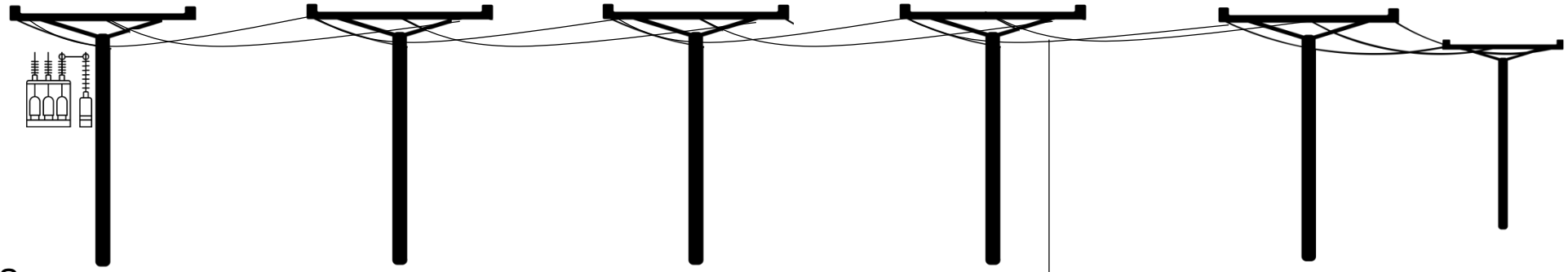
Steve Oh

Senior Analyst

# Voltage standard – Proposed changes

- Introduce flexible voltage standard (AS 61000.3.100) for the low voltage distribution system
- Maintain the existing customer protection framework with revised parameters. This continues the code's interaction with our Guideline 11 (Voltage variation compensation)
- Introduce new information reporting requirements for distributors to improve transparency and leverage smart meter technology

# Voltage standard - Concept



EDC
voltage limits

+10%

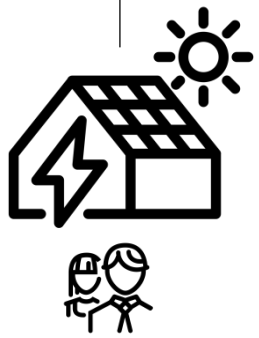
230V

-6%

Voltage profile of supply

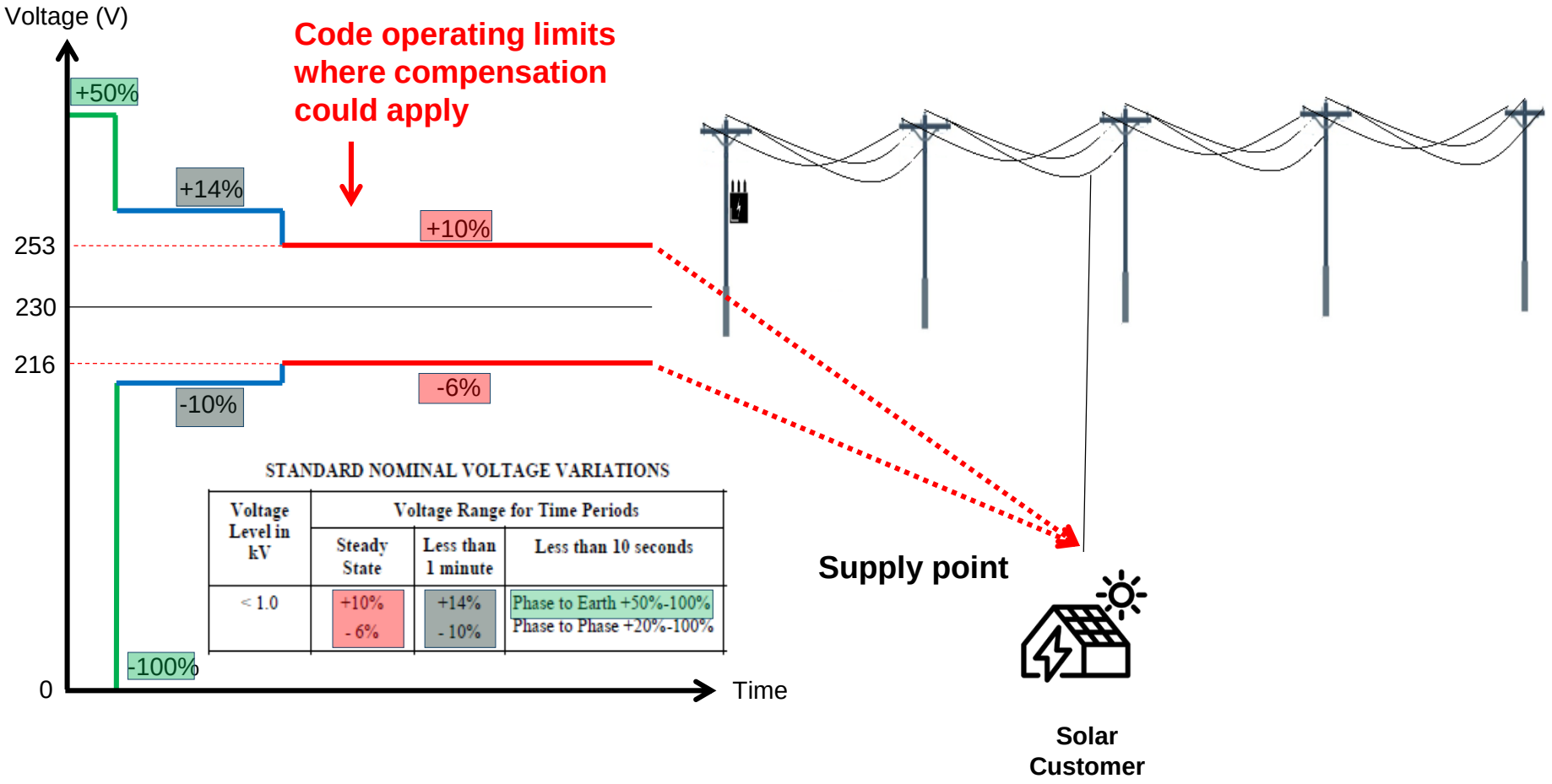
Distance

| STANDARD NOMINAL VOLTAGE VARIATIONS | | | | |
|---|---|---|---|---|
| Voltage Level in kV | Voltage Range for Time Periods | | | Impulse Voltage |
| | Steady State | Less than 1 minute | Less than 10 seconds | |
| < 1.0 | +10%<br>- 6% | +14%<br>- 10% | Phase to Earth +50%-100%<br>Phase to Phase +20%-100% | 6 kV peak |
| 1-6.6 | ± 6 %<br>(± 10 %<br>Rural<br>Areas) | ± 10% | Phase to Earth +80%-100%<br>Phase to Phase +20%-100% | 60 kV peak |
| 11 | | | | 95 kV peak |
| 22 | | | | 150 kV peak |
| 66 | ± 10% | ± 15% | Phase to Earth +50%-100%<br>Phase to Phase +20%-100% | 325 kV peak |



**Solar customer**

# Voltage standard - Current




STANDARD NOMINAL VOLTAGE VARIATIONS

| Voltage Level in kV | Voltage Range for Time Periods | | |
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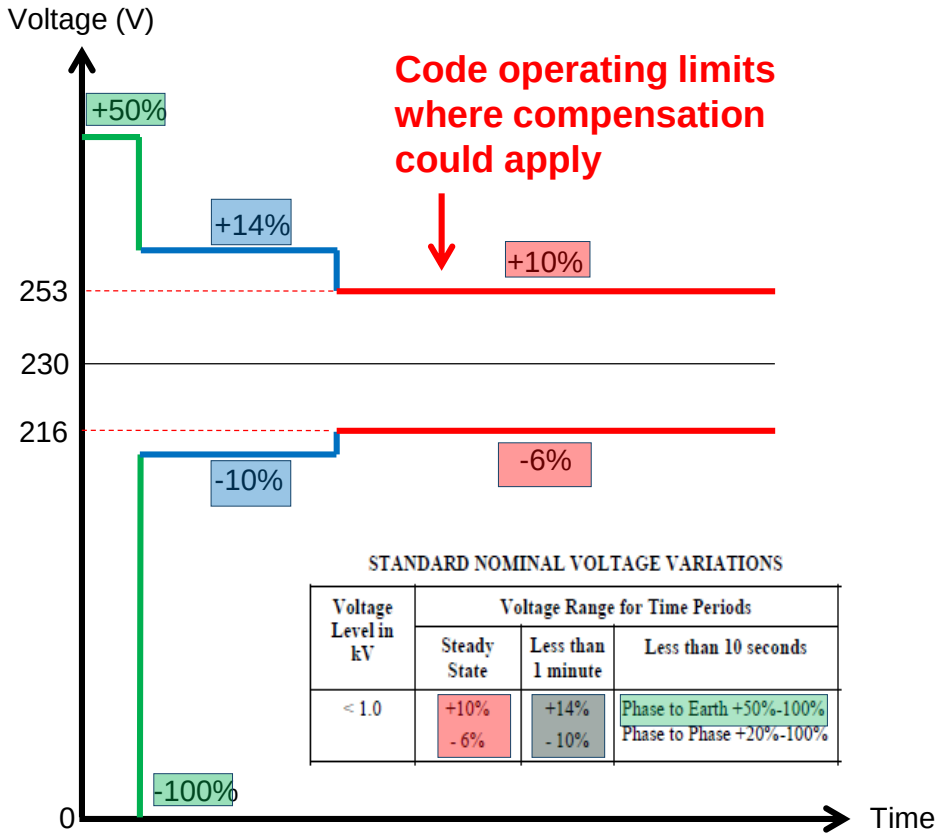
# Voltage standard – Proposed change & customer protection

## Electricity Distribution Code (Current)




STANDARD NOMINAL VOLTAGE VARIATIONS

| Voltage Level in kV | Voltage Range for Time Periods | | |
|---|---|---|---|
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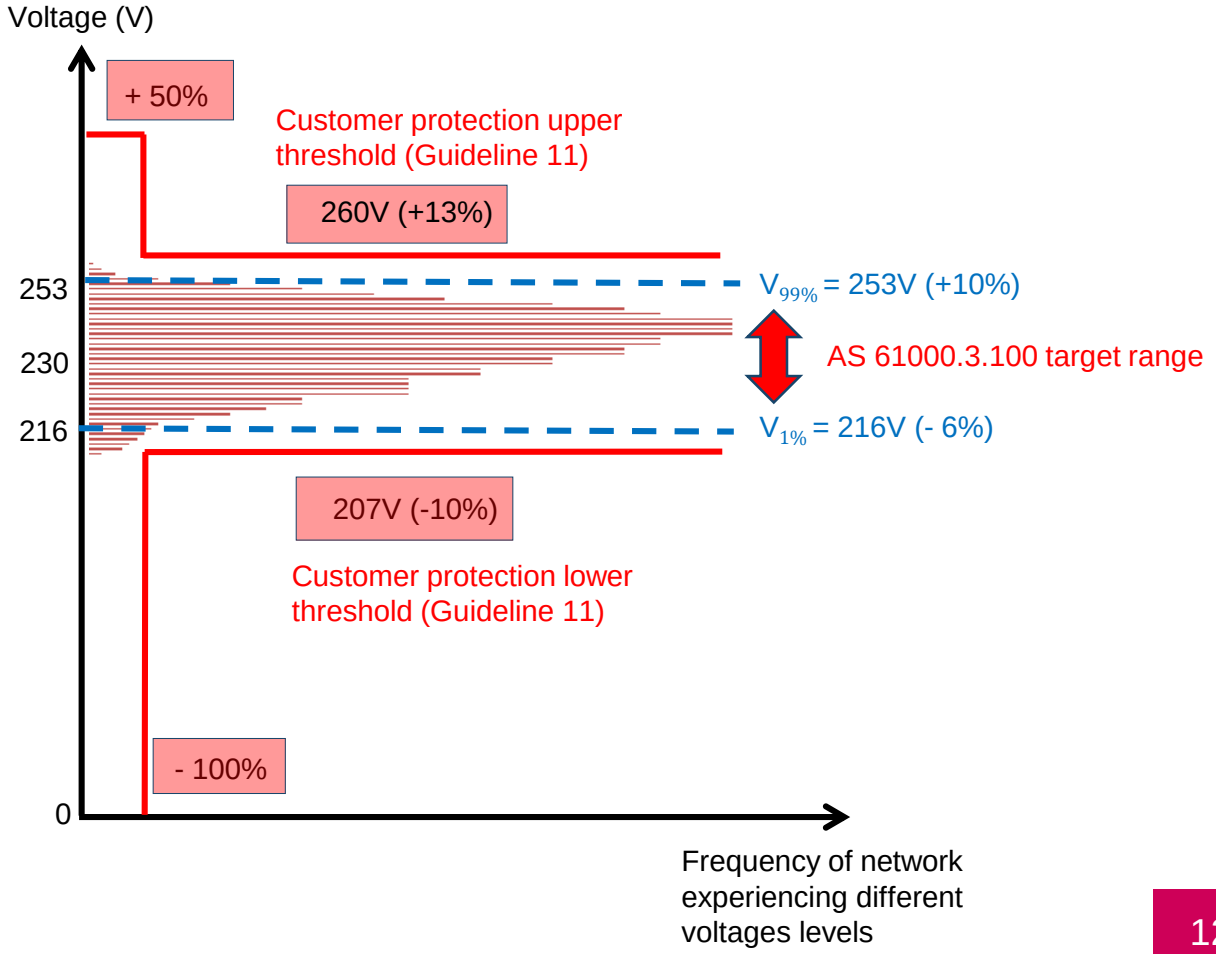
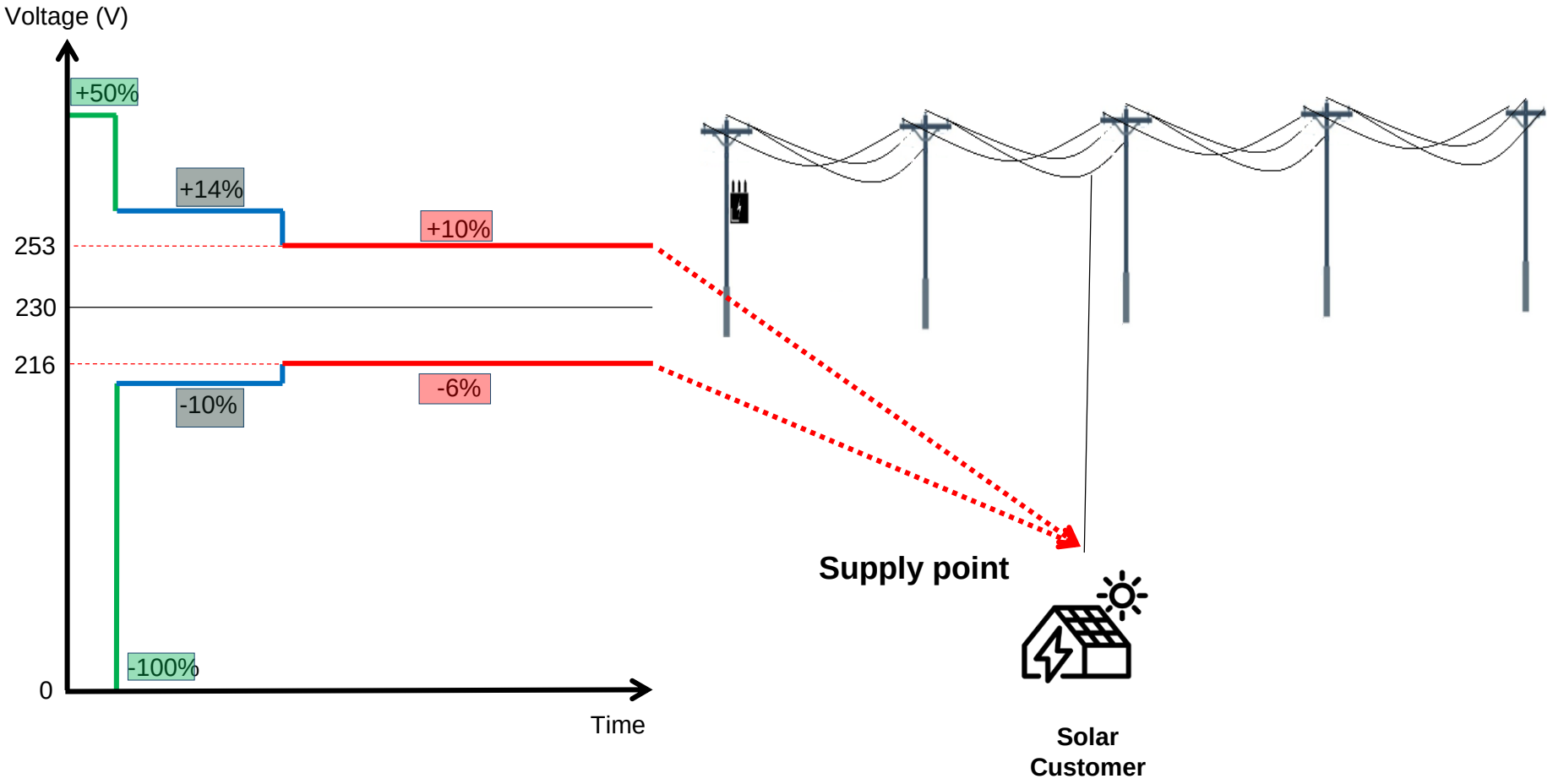
| < 1.0 | +10% -6% | +14% -10% | Phase to Earth +50%-100% Phase to Phase +20%-100% |

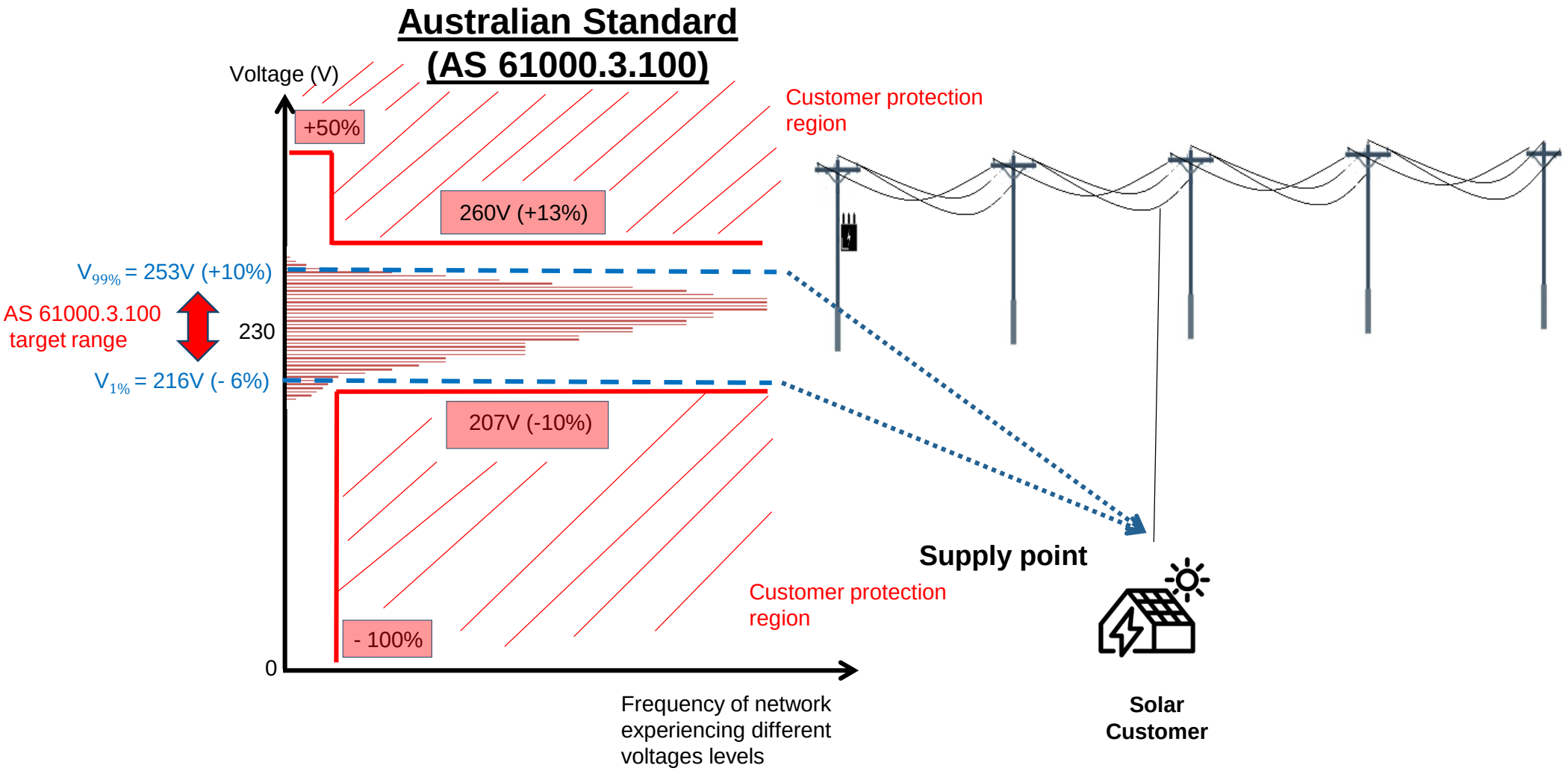
## Australian Standard (AS 61000.3.100) - Proposed



# Voltage standard – Current



# Voltage standard – Proposed (Flexible)



# Voltage standard – New reporting requirements

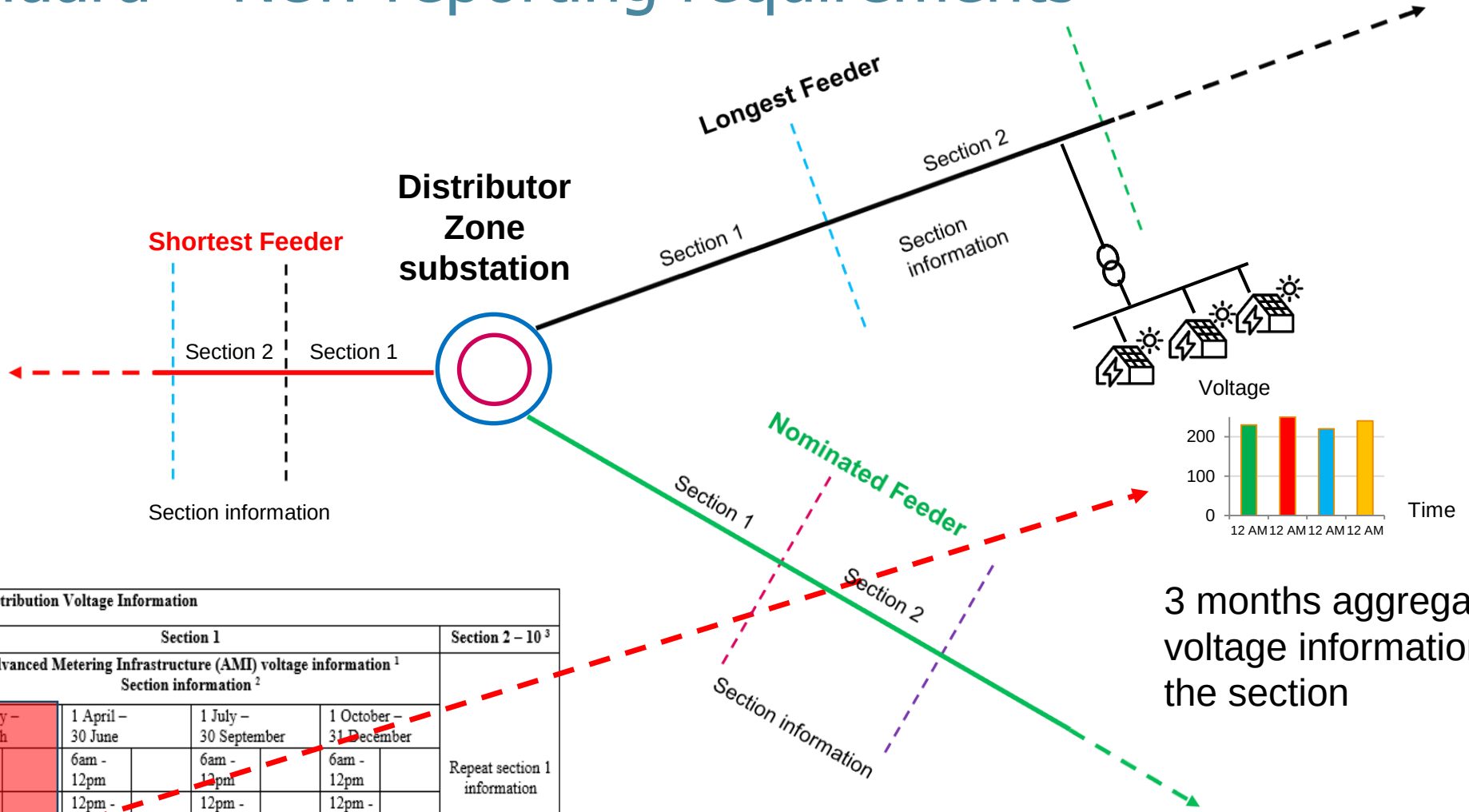



Table 6

| Distribution Voltage Information | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Zone substation name | Feeder ID / name | Feeder category | Feeder classification | Section 1 | | | | | | | | Section 2 – 10 [3] |
| | | | | Advanced Metering Infrastructure (AMI) voltage information [1] Section information [2] | | | | | | | | |
| | | Shortest, longest and nominated feeder [4] | (Urban, short or long rural) | 1 January – 31 March | | 1 April – 30 June | | 1 July – 30 September | | 1 October – 31 December | | Repeat section 1 information |
| | | | | 6am - 12pm | | 6am - 12pm | | 6am - 12pm | | 6am - 12pm | | |
| | | | | 12pm - 6pm | | 12pm - 6pm | | 12pm - 6pm | | 12pm - 6pm | | |
| | | | | 6pm - 12am | | 6pm - 12am | | 6pm - 12am | | 6pm - 12am | | |
| | | | | 12am - 6am | | 12am - 6am | | 12am - 6am | | 12am - 6am | | |

3 months aggregate voltage information for the section

# Other technical standards – Proposed updates

We propose updating legacy standards and referenced documents to reflect current standards or industry practices. Some of these are:

- Over voltage control (managing low voltage disturbances)
- Powerline signals (using the power line as a communication medium to transmit signals)
- Referencing latest safety regulations

# Other technical standards – Proposed harmonisation

We propose aligning some standards with the National Electricity Rules or other jurisdictional approaches, where appropriate. Some of these are:

- Power factor (the effective use of electricity)
- Negative sequence (the allowable level of system imbalance)
- National register of Distributed Energy Resources

# Technical standards not being amended

We propose not to change a small number of technical provisions. Some of these are:

- Supply frequency standards
- Load balance
- Impulse voltage

# Other general updates

We proposed a range of other general updates to reflect current legislation, regulations, referenced documents and definitions. Some of these are:

- Updating various AER definitions with current references
- Updating AEMO documents with current references
- Other small updates

# Next steps

## Technical standards stream


**Make your submissions to ‘Engage Victoria’ by 20 January 2020**

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# Questions / Activity

# Questions / Activity

1. **Spend 5 minutes to write down the questions you may have regarding the draft decision**

2. **Spend another 5 minutes to discuss with your table peers and write down the top two questions the table wish to pose for the draft decision Q & A**

# Continue the conversation

| | |
|---|---|
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# Thank you