

CMP 460 - Improving Transmission Connection Asset Charging

Examples of Infrastructure Configurations

Option 1

Code Change Proposal – OPTION 1

Socialise, through TNUoS, all shareable transmission reinforcement triggered by directly connected and embedded distribution connections

- CUSC code change required. New asset classification suggestion:
 - **Embedded Shared Connection Asset** – *A Transmission Connection Asset which connects more than one embedded customer via a licensed distribution network*
- Charging rules for these assets to be aligned with those for Infrastructure Assets – i.e. funded solely via TNUoS

Benefits

- Same charging mechanism now for ALL assets regardless of whether a GSP is an infrastructure site.
- NESO and TOs could use existing economic assessment mechanisms to determine whether new SGTs are an economically efficient solution to prevent excess TNUoS burden.
- Fairly simple CUSC Code Mod

Disadvantages

- Disadvantages
- Significant additional TNUoS Burden
- Lack of locational incentive for generators to locate under less constrained GSPs

Ownership Boundaries

- All examples assume an Air Insulated Switchgear (AIS) design, except where explicitly stated.
- For Gas Insulated Switchgear the User 'bay' would typically be a connection asset rather than a User asset due to the typical ownership boundary used for GIS substations.

[User connection boundaries | National Grid](#)

Charging Boundaries

- The worked examples do not define which user is responsible for paying for each Connection Asset. The User who has triggered the need for the Connection Asset will pay for the Connection Asset

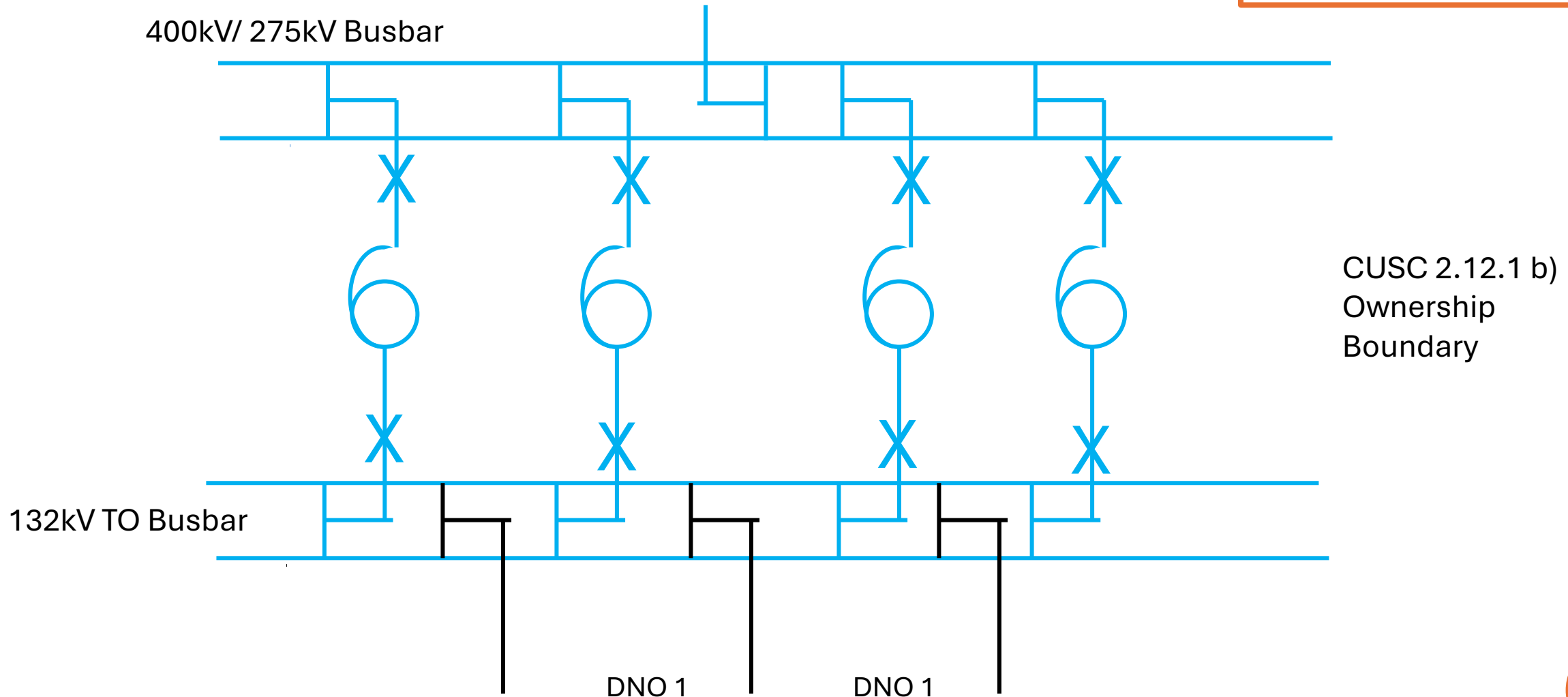
Glossary

Acronym	Definition
TO	Transmission Owner
DNO	Distribution Network Owner
HV	High voltage >132kV
LV	Low Voltage, $\leq 132\text{kV}$
GSP	Grid Supply Point
SGT 6	Super Grid Transformer
GIS	Gas Insulated Switchgear
AIS	Air Insulated Switchgear
User	A person who is a party to the CUSC Agreement, as defined by the table in in clause 1.2.4 of the CUSC . For CMP460 worked examples, each Bilateral Connection Agreement, i.e. Bilateral Connection Agreement, will be treated as a separate User of the Transmission Network.

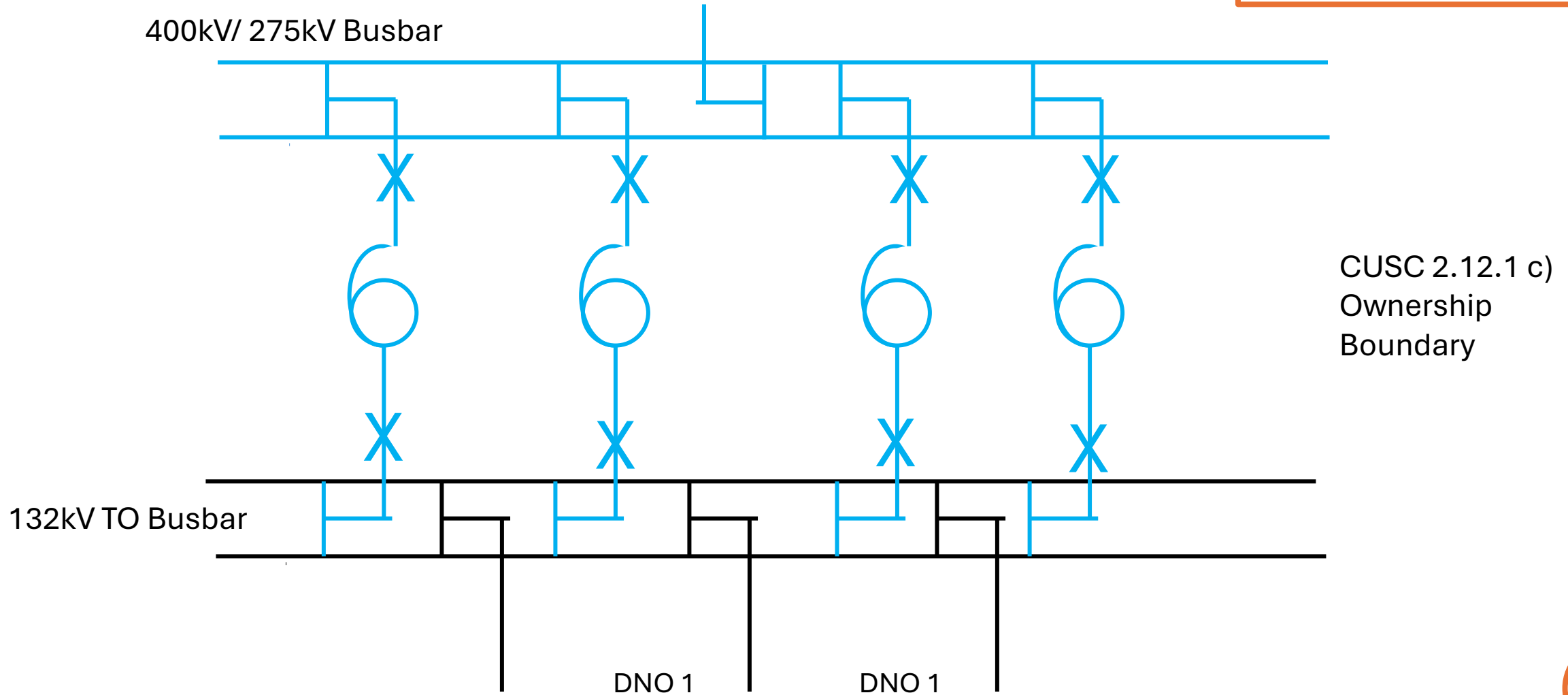
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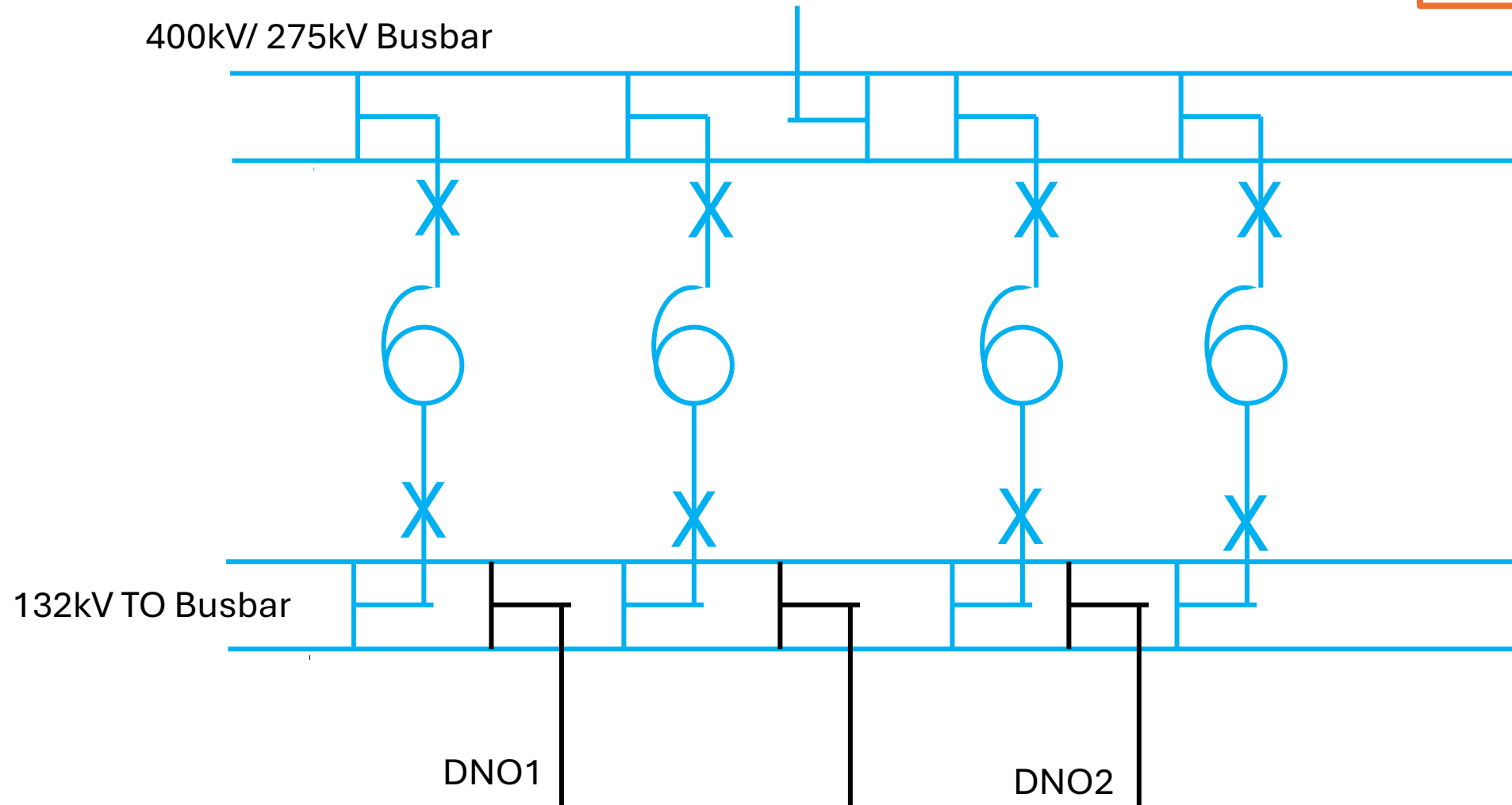
Single DNO Customer at a GSP with TO owned LV busbars



Single DNO Customer at a GSP with DNO owned LV busbars

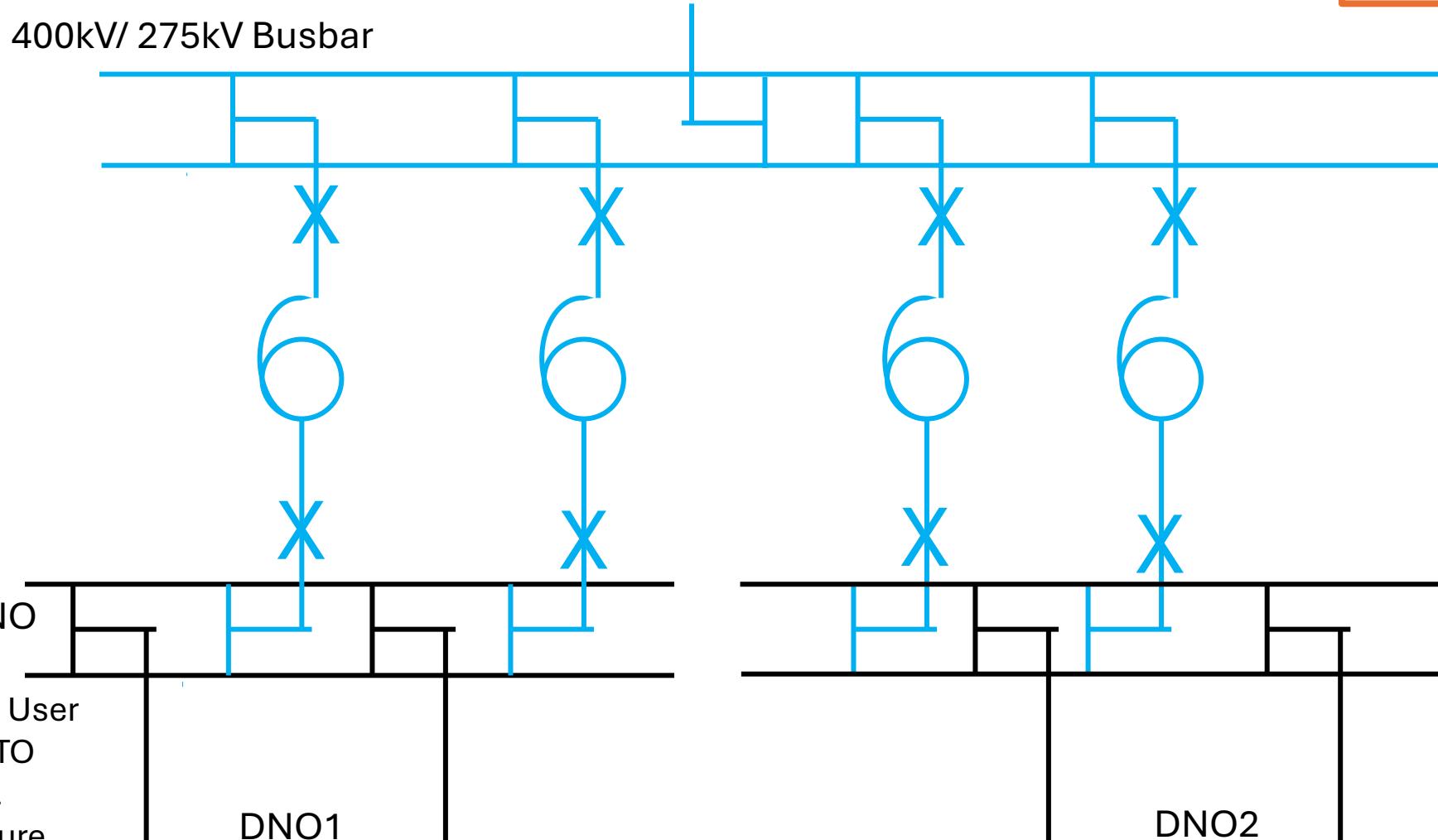


Multiple DNOs with a Shared 132kV Substation

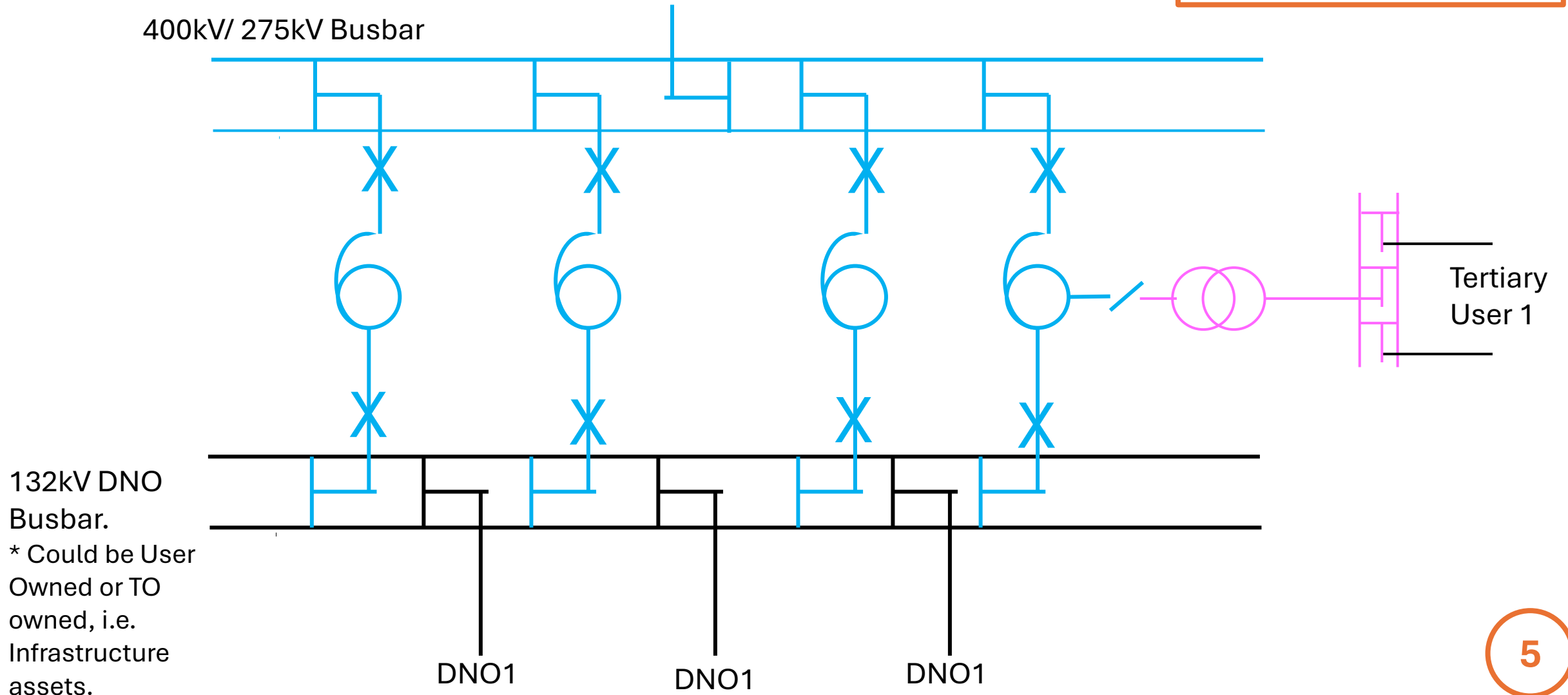


Multiple DNOs, separate 132kV Substations

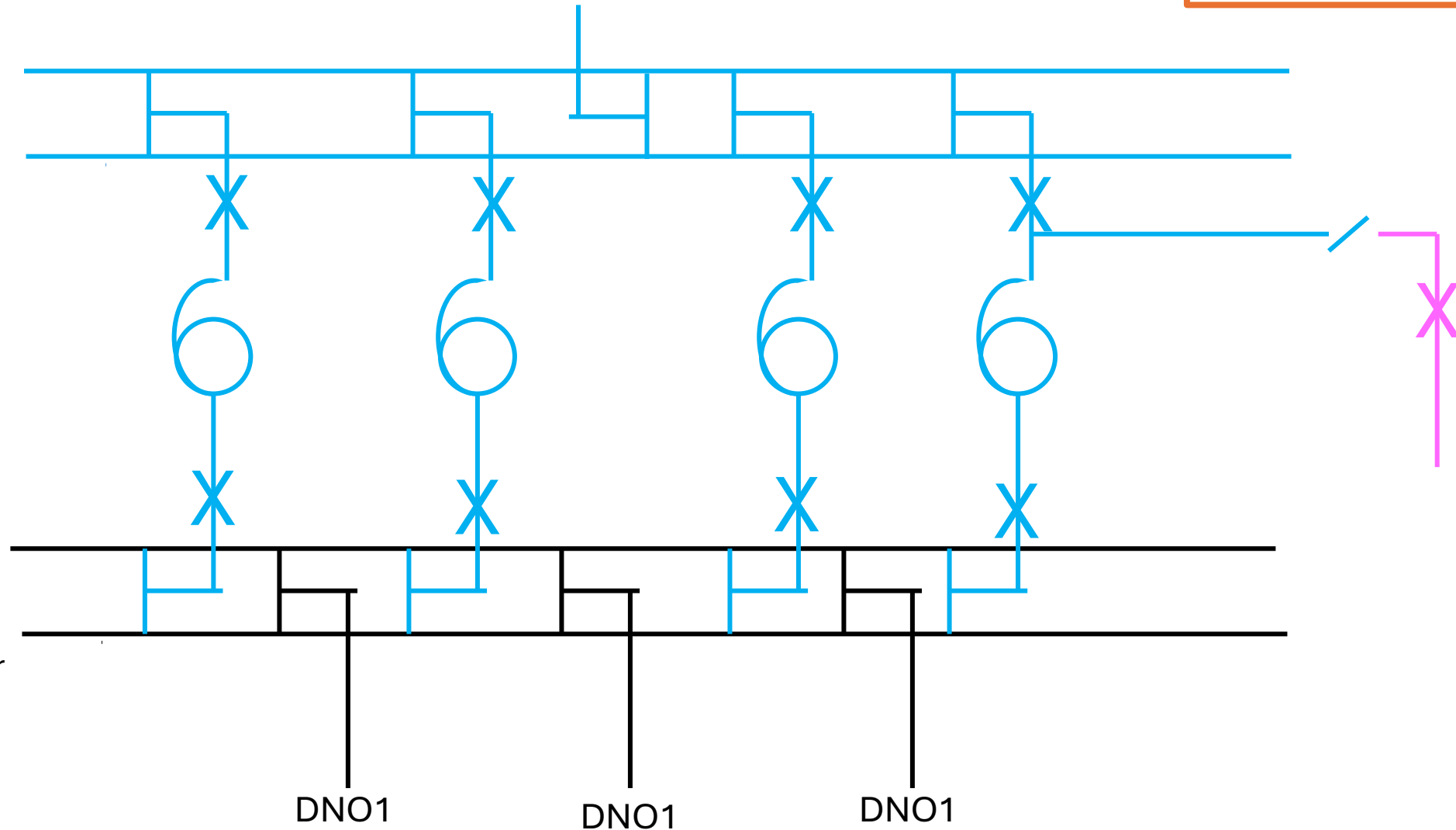
DNO Owned LV busbars



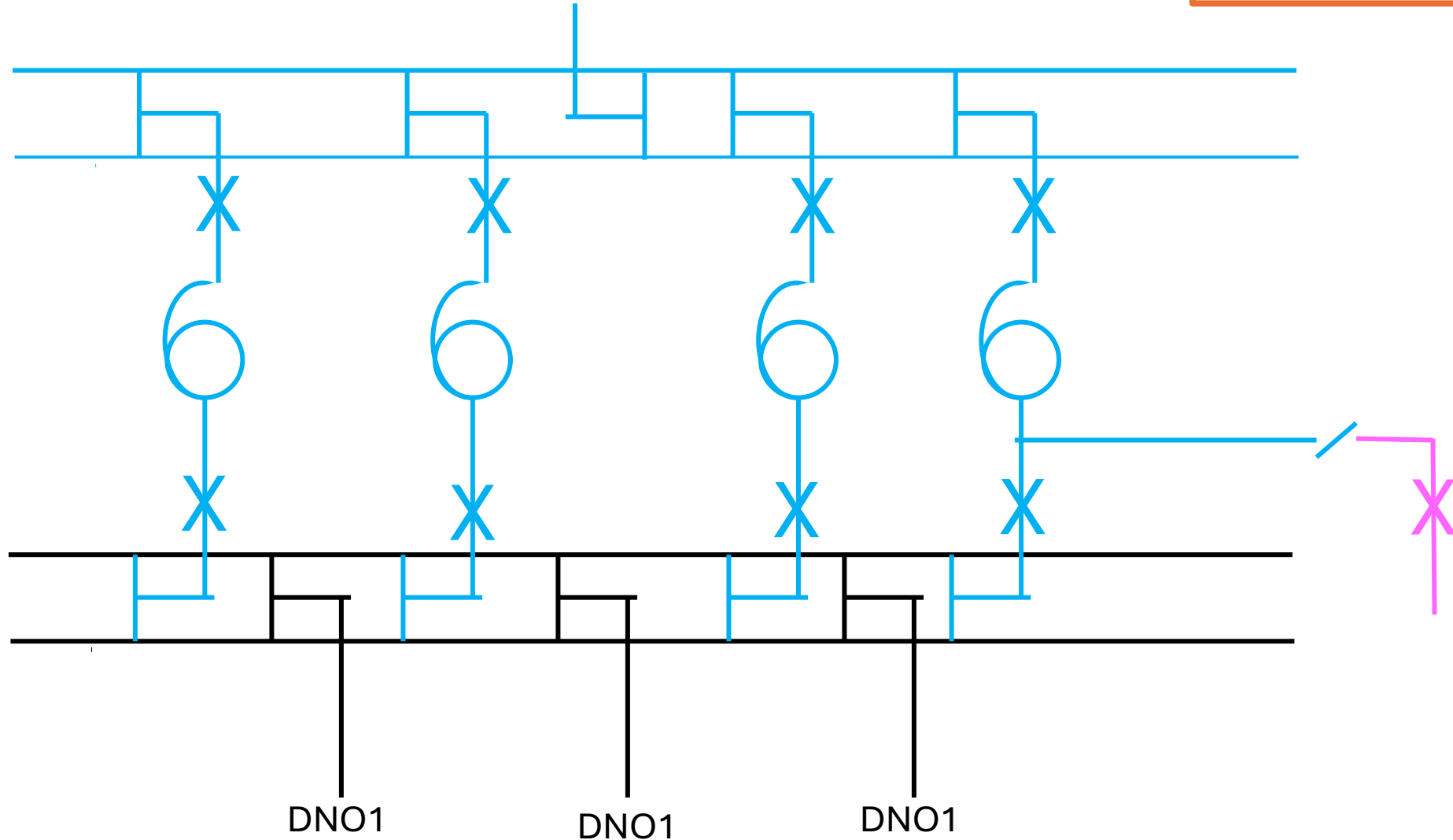
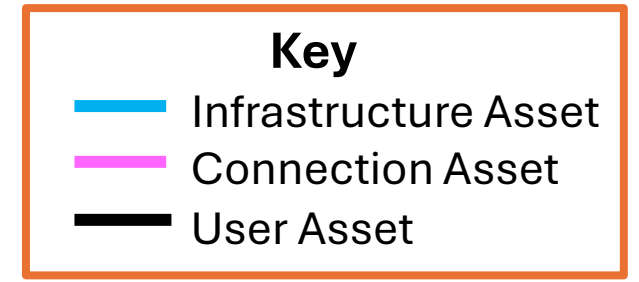
Single DNO and Tertiary Connection



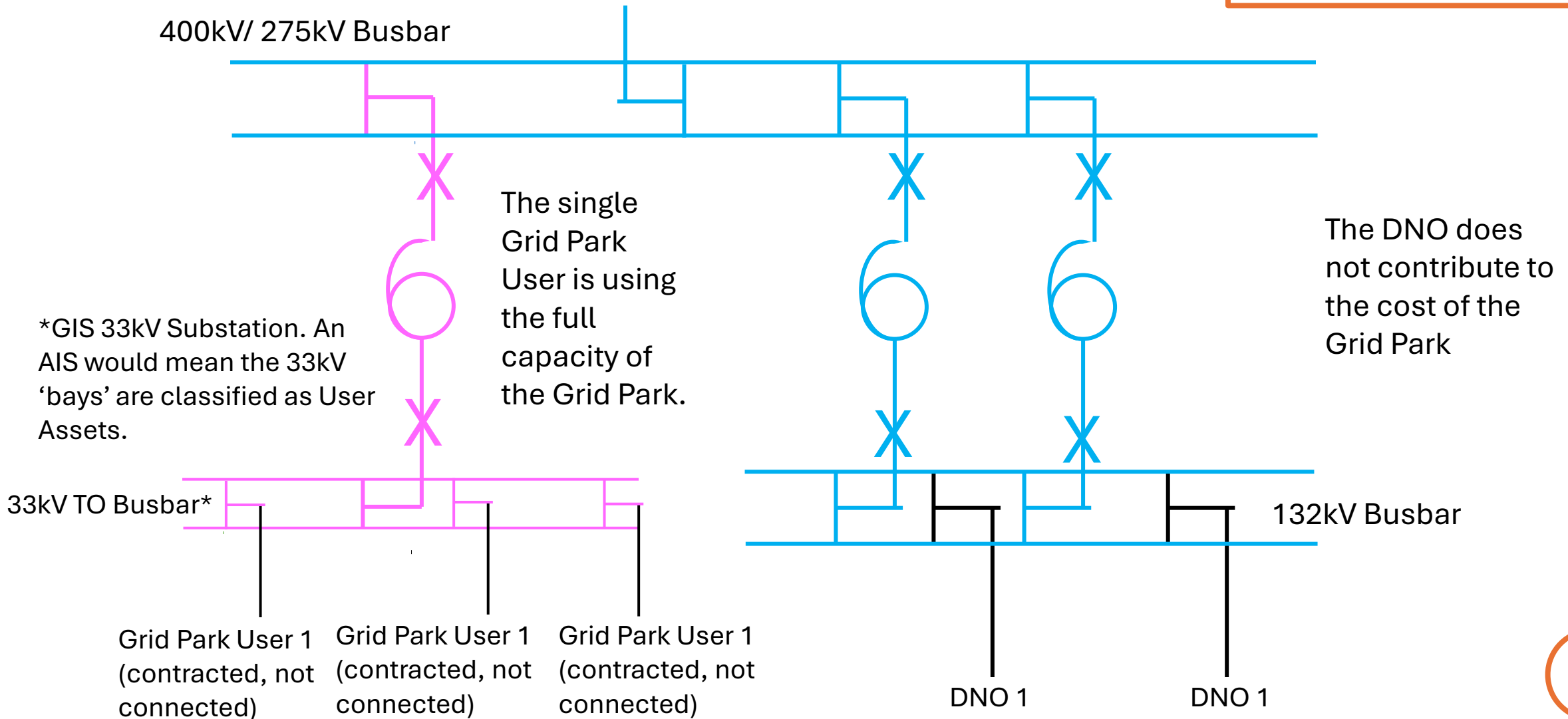
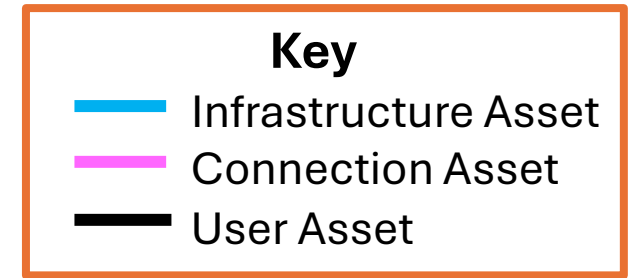
Banked HV (>132kV) Connection, single DNO



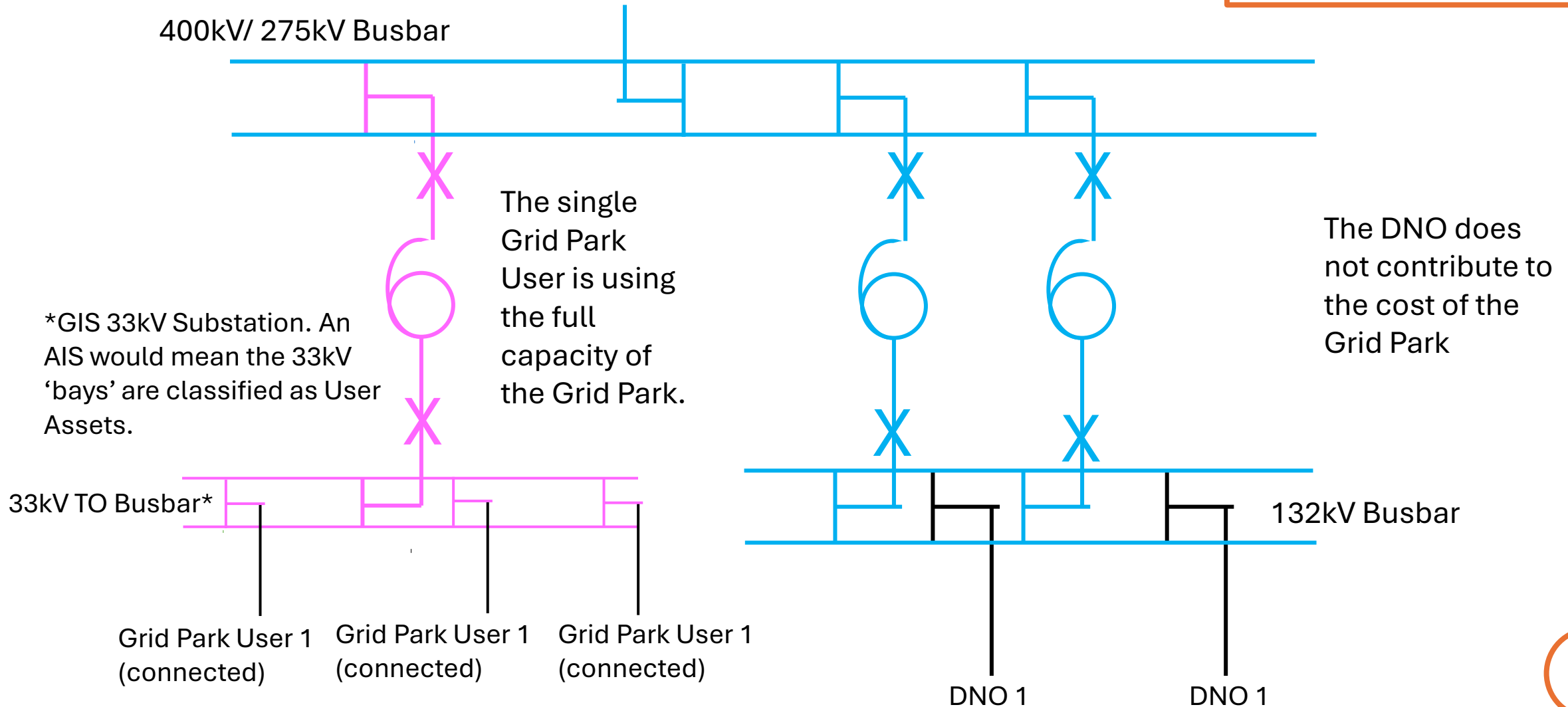
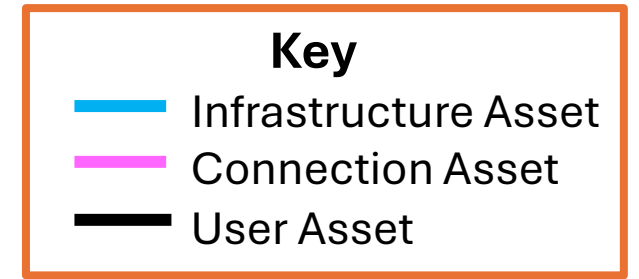
Banked LV Connection, single DNO



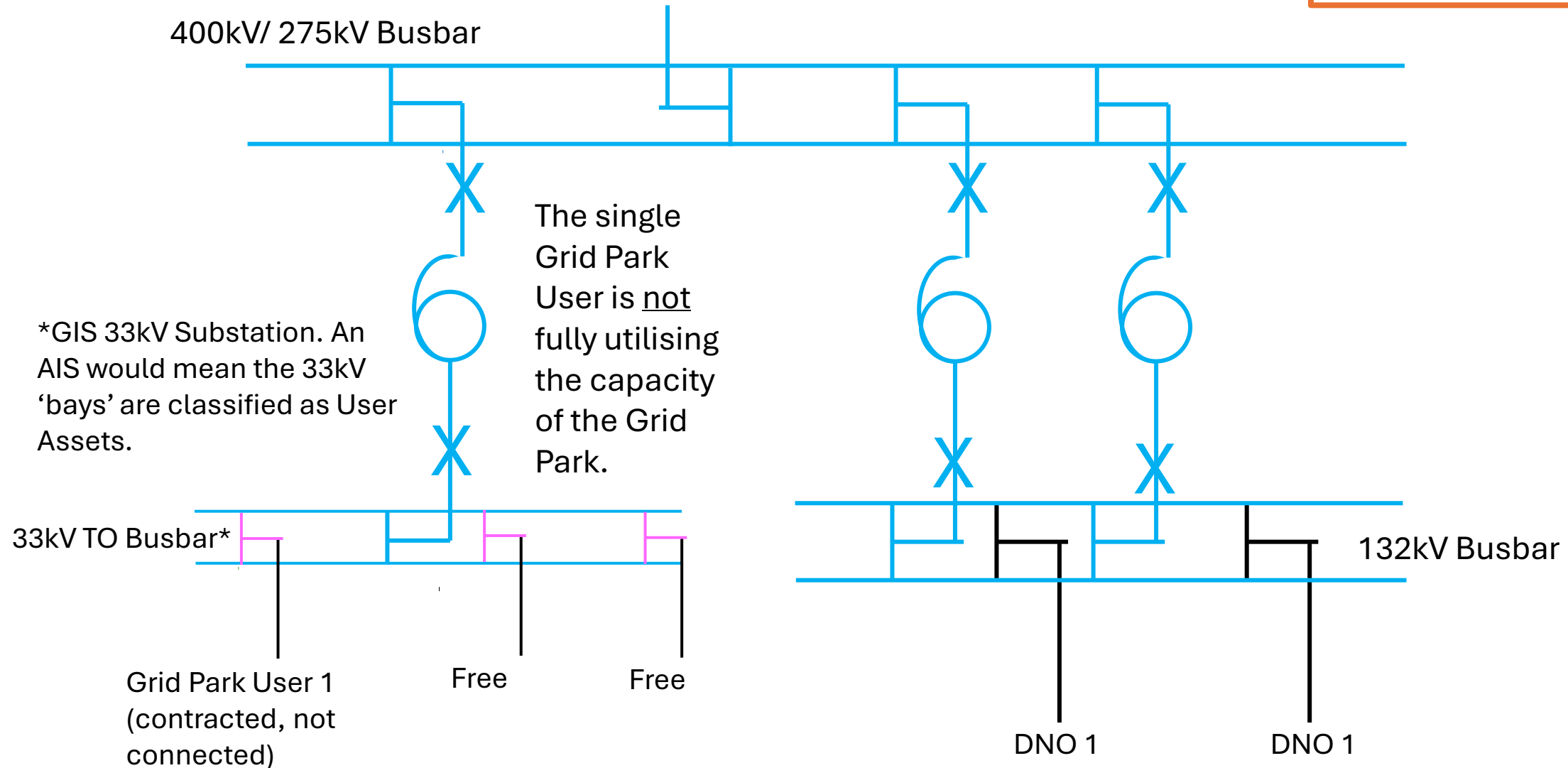
Grid Park Full Capacity – One Customer Contracted



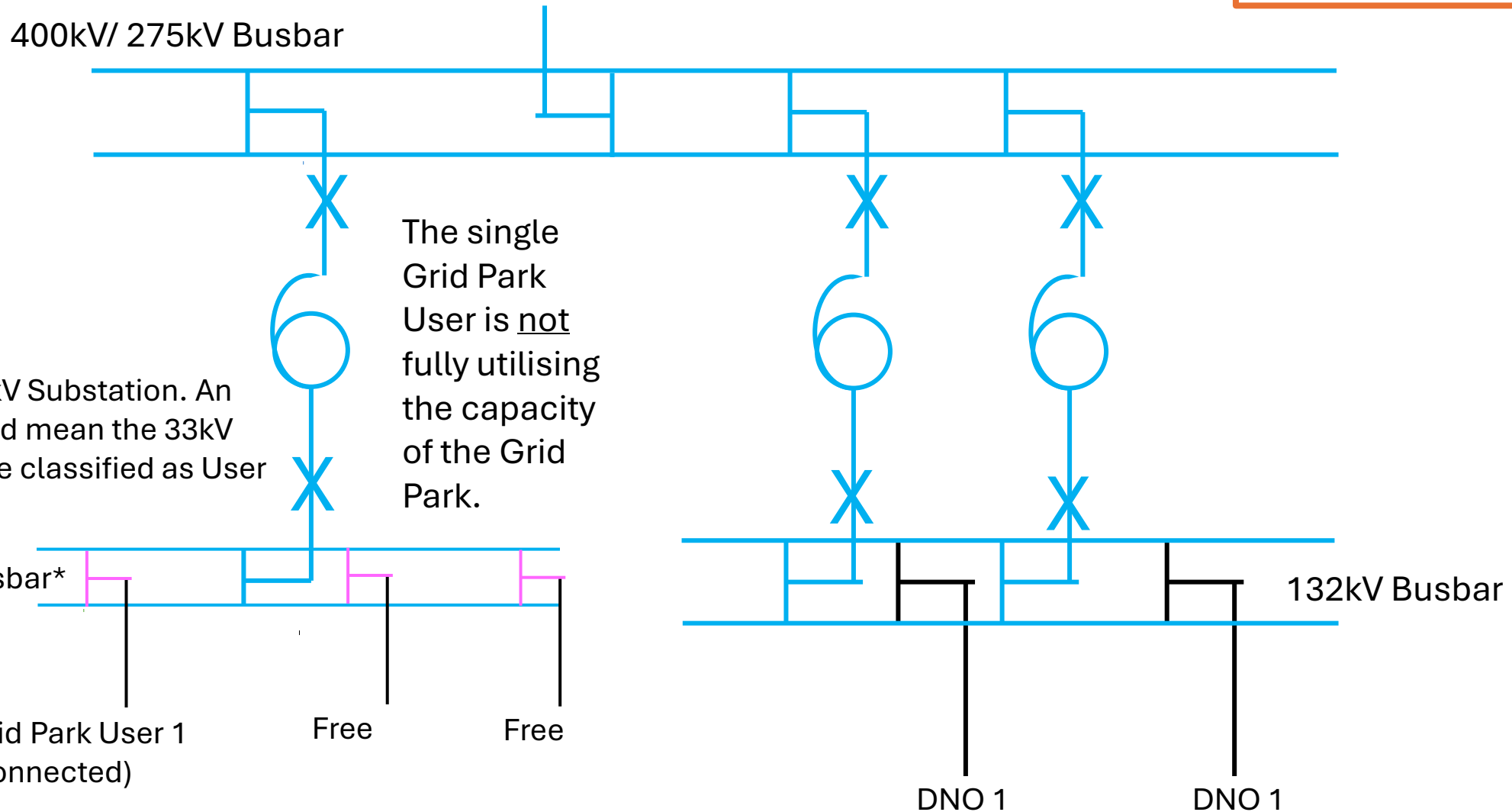
Grid Park Full Capacity – One Customer Connected



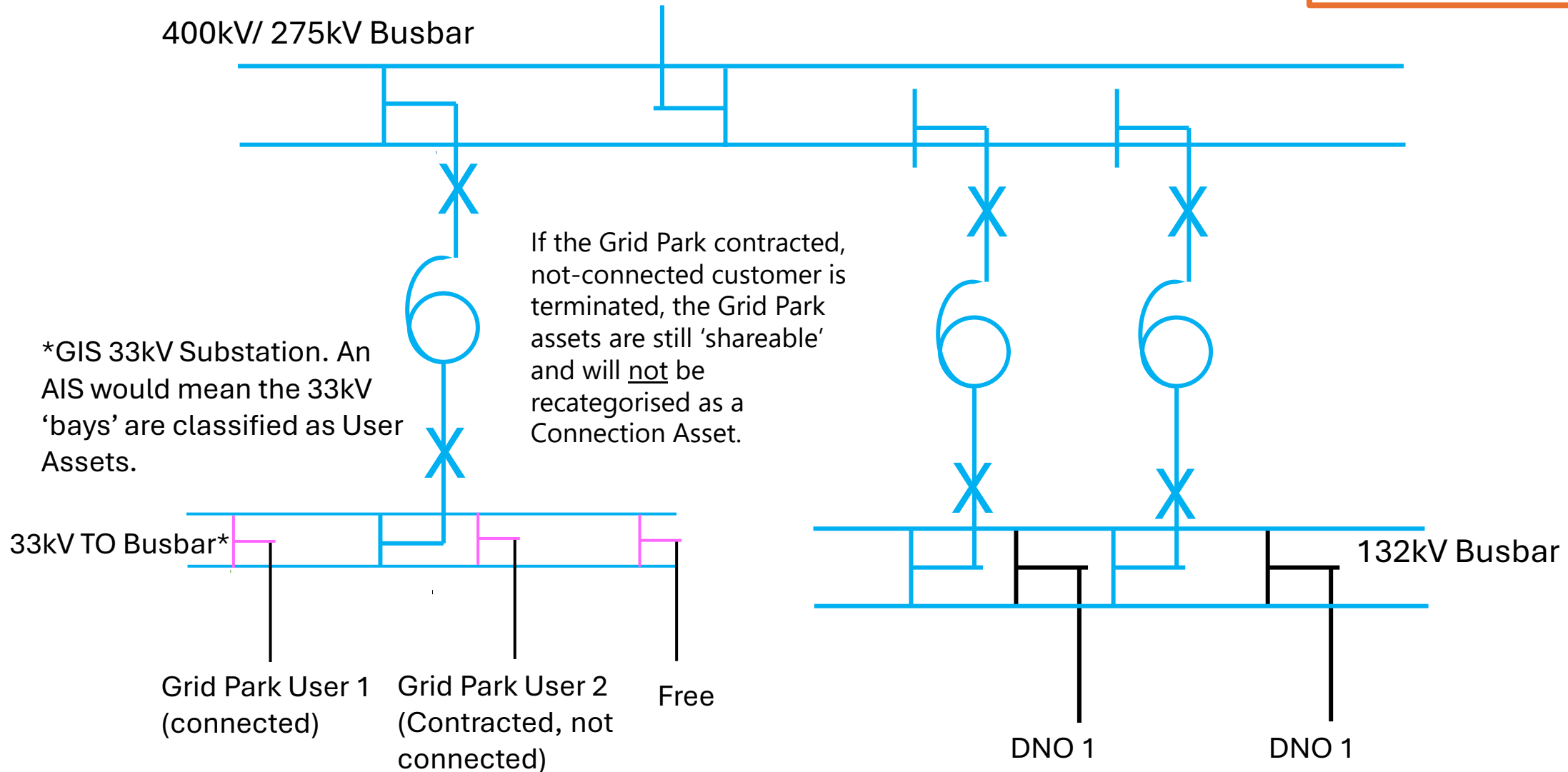
Grid Park Partially Full Capacity – One Customer Contracted



Grid Park Partially Full Capacity – One Customer Connected



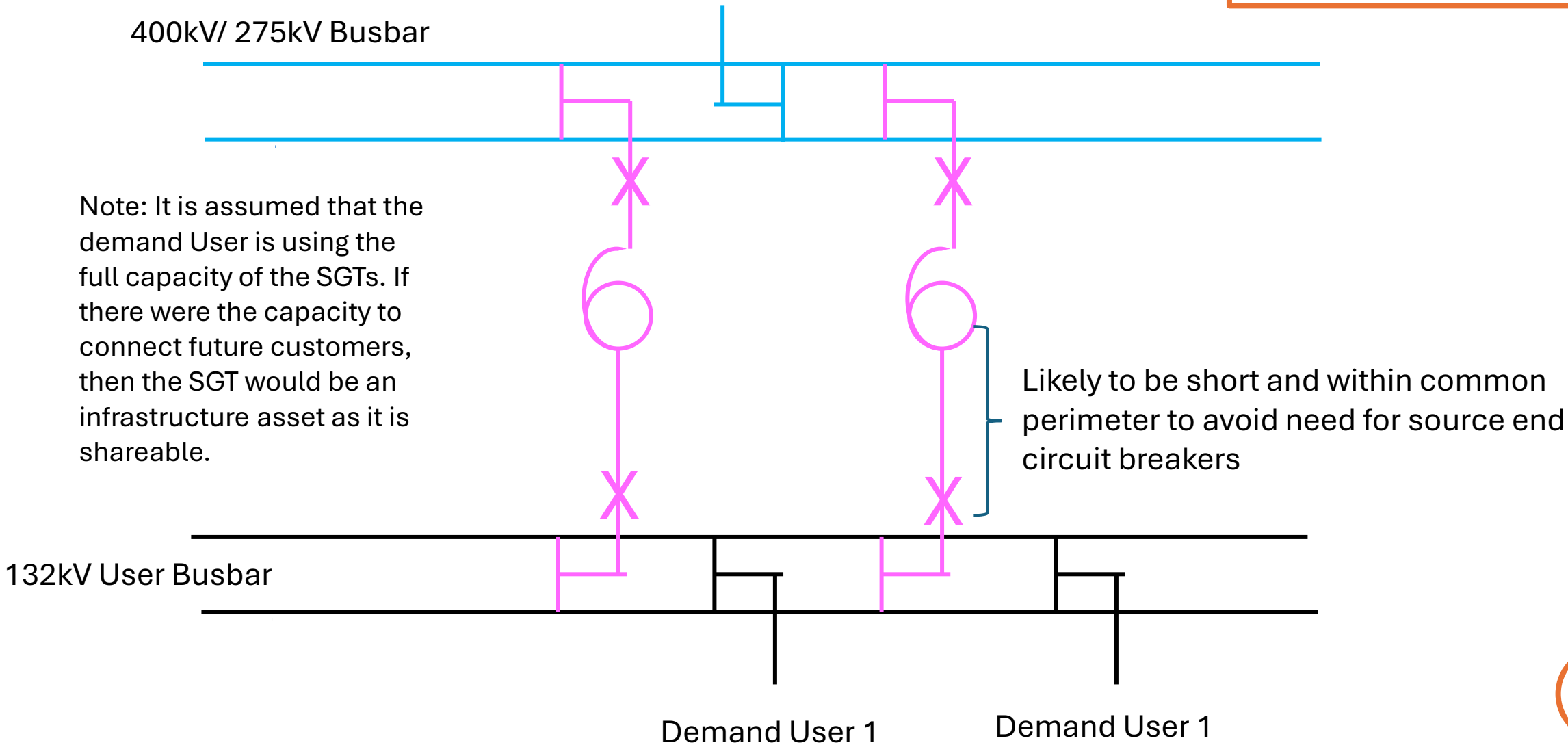
Multiple Grid Park Users



Single Directly Connected Final Demand User Common Location

Key

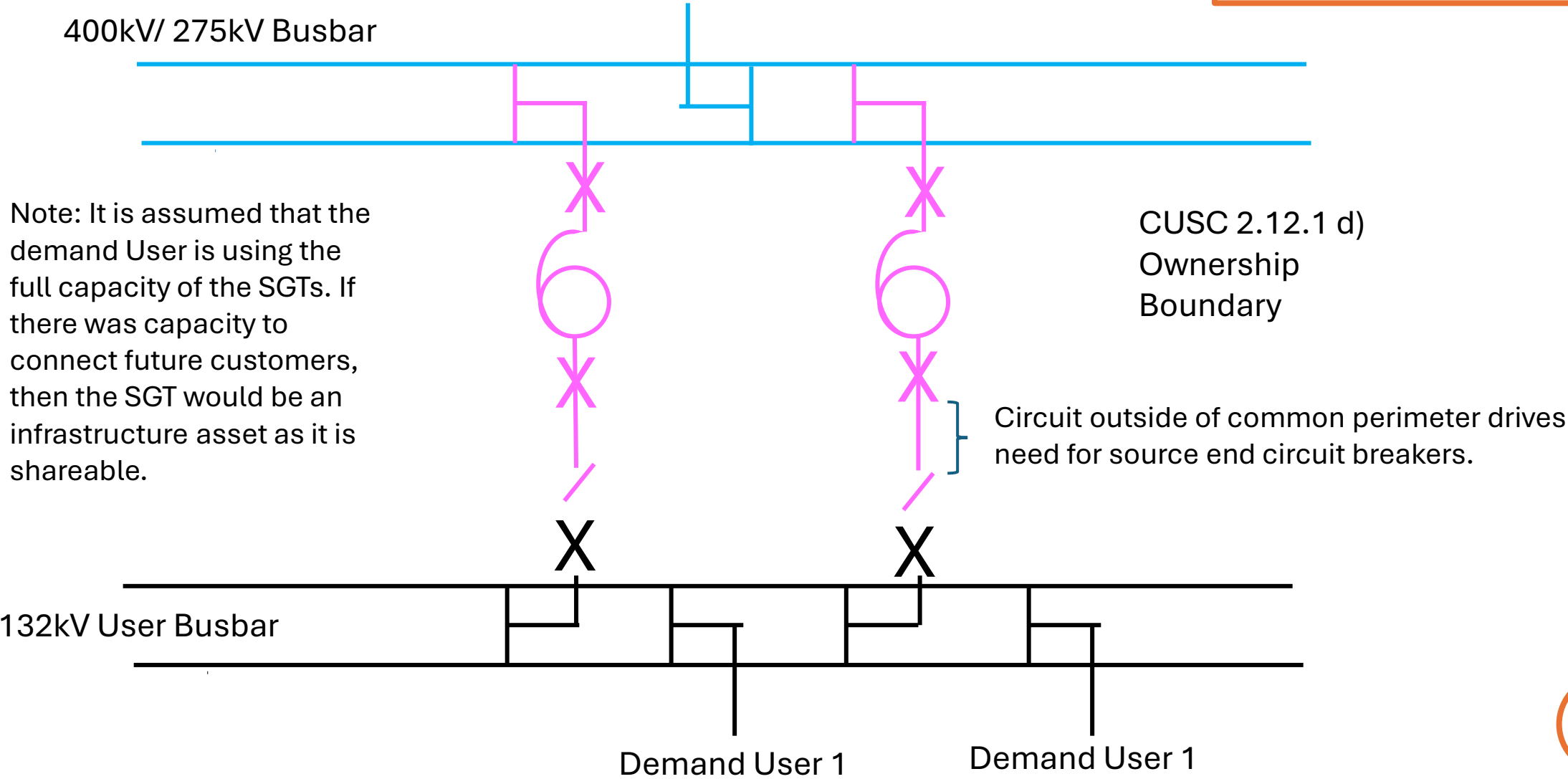
- Infrastructure Asset
- Connection Asset
- User Asset



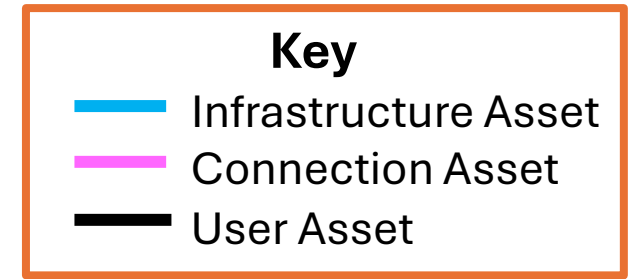
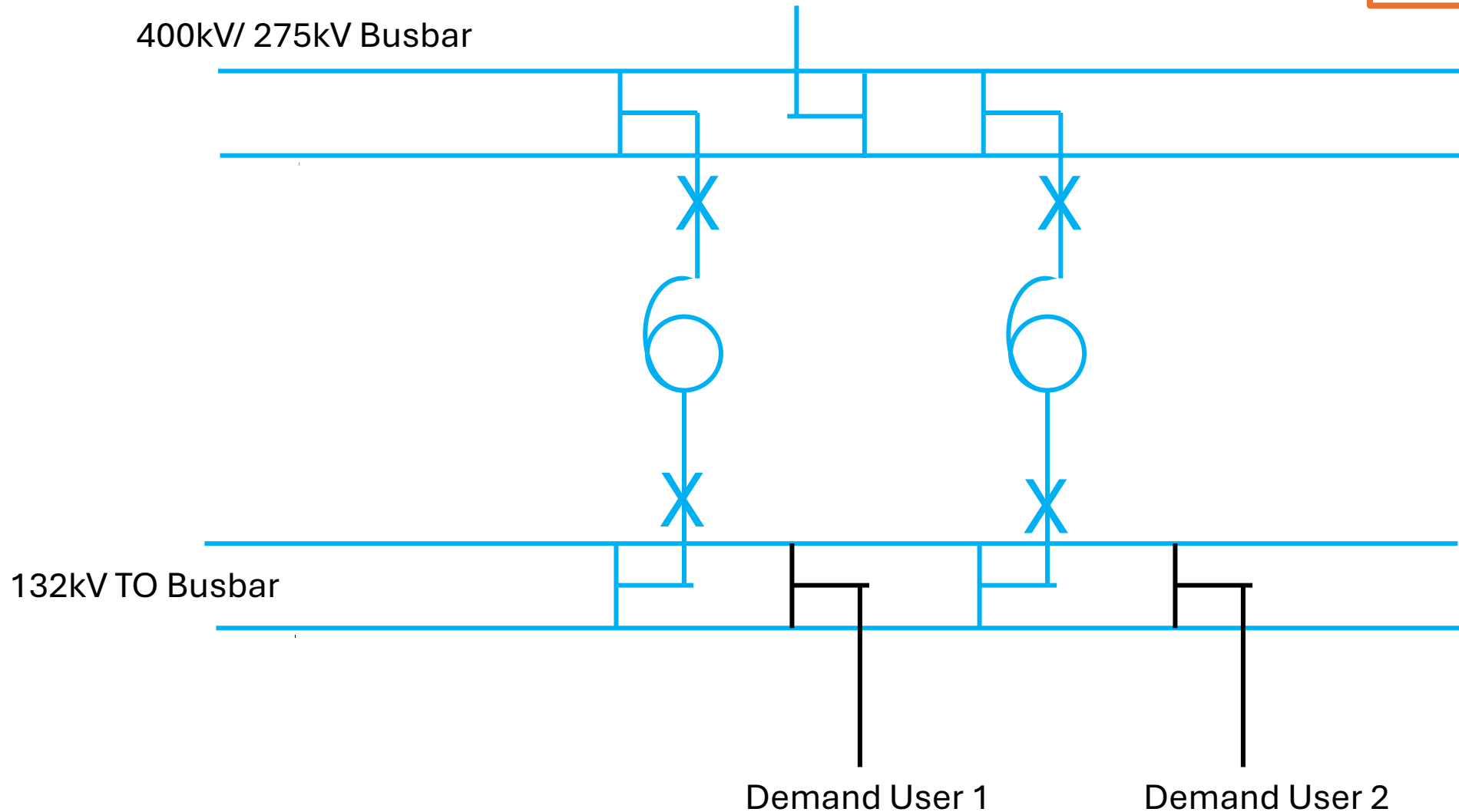
Single Directly Connected Final Demand User Remote Location

Key

- Infrastructure Asset
- Connection Asset
- User Asset



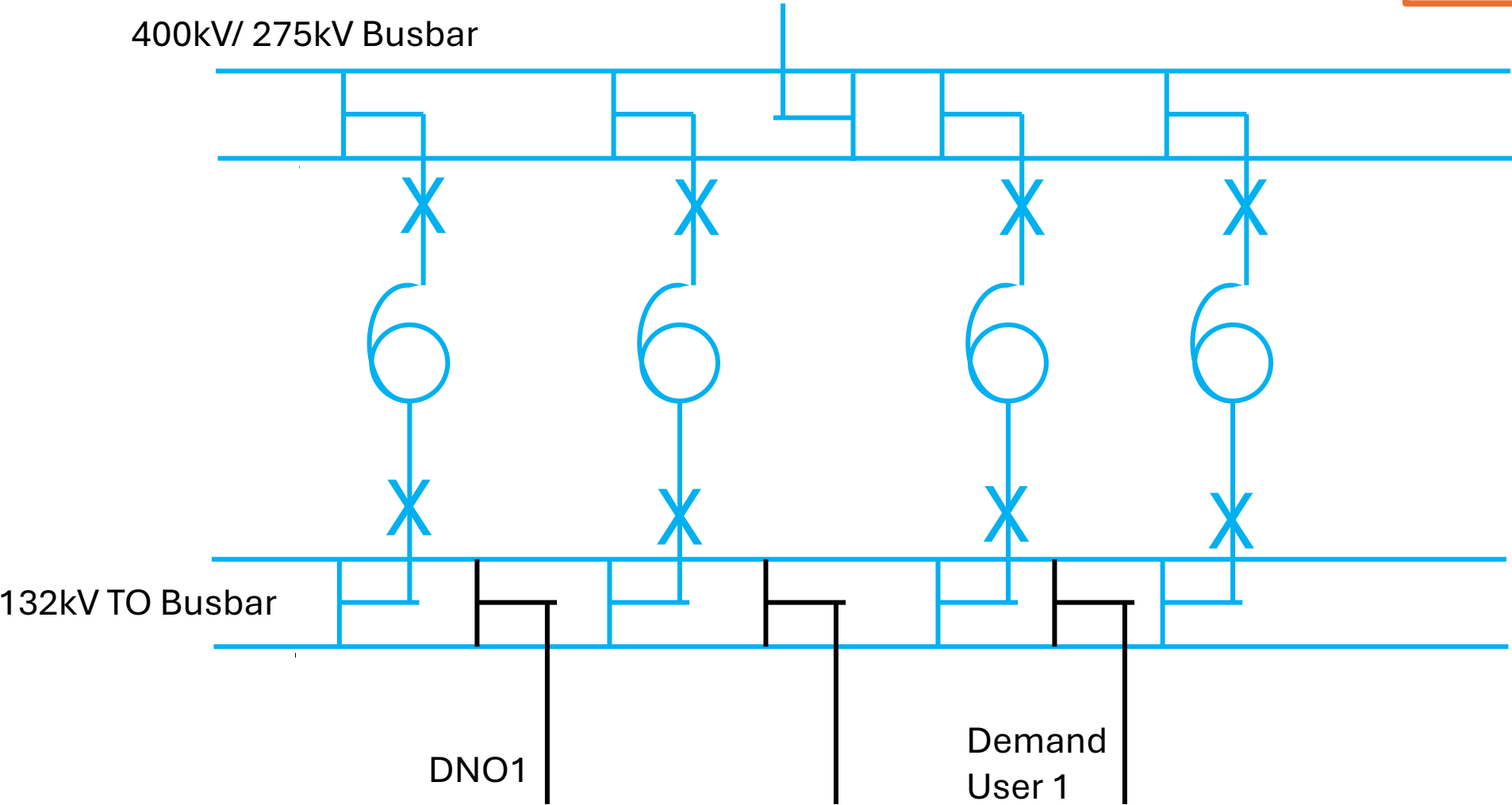
Multiple Directly Connected Final Demand Users Common Location



DNO and Directly (Transmission) Connected Final Demand User with a Shared 132kV Substation

Key

- Infrastructure Asset
- Connection Asset
- User Asset



DNO and Directly (Transmission) Connected Final Demand User with separate 132kV Substations

