THE ADVANTAGES OF BUSWAY SYSTEM
What is a busway?

A prefabricated electric distribution system consisting of pre-tested bus bars in a protective enclosure, including, straight length, fittings, and accessories (NEMA).

Busway or Cable?

- Safety,
- Performance,
- Space occupancy,
- Ease of Installation,
- Flexibility,
- Economical,
- Scalable,
- Maintenance Free,
- Sustainable

Advantages of Busway

- Busway have compact size. Busway systems need less space than cables, especially for high ampere rates.
- Busway have sheet metal body, thus heat dissipation is better than cables.
- Busway are modular; can be changed and/or removed and then installed again somewhere else.
- Cable systems can burn and help the fire spread out. Busway do not burn, nor generate poisonous gases.
- Installation time is much more shorter, and reduces manpower costs.
- Short-circuit withstand is much higher than cables.
- For high ampere rating, busway result in much lower resistance and impedance, and thus lower voltage drop.
- The compact structure and steel housing results in much lower electromagnetic field around the busway than in cables.
- Normally, in high ampere ratings, more than one cable is used for the same phase connection, whereas busway eliminate length difference between conductors and provide equal load on each line.
- With busway, the location of tap-off boxes can be easily and safely changed according to future needs. Also the number of tap-off boxes can be increased.
- Tap-off units are prewired and pretested.
- Energy metering is easily managed at each tap-off box. The power monitoring helps anticipate potential branch circuit tripping.
- Busway cannot be bitten or damaged by rodents.
- Housing can be designed to different IP rating depending on site and weather conditions.

Space Management
Space Management

- Cables – More Space for bend / turns
- Cables – More no of cables per amount of power distributed
- Busway – Less space for bend / turn
- Busway – Compactness for the same amount of power distributed

Rack Power Distribution

- Double neutral for data center installations with high reverse current.
- No need for service engineer/power technician to connect the rack.
- Copper losses are reduced thanks to decentralized distribution.
- Life Time for Busway is 50 years while for cables is 15 to years (General Electric)
- “Green” – lower voltage drop, more efficient, recyclable material, no jobsite scrap or waste.
- Busway material do not burn and are halogen free.
- Smaller and lighter than cable & conduit = more saleable or rentable building space (direct advantage is less space and improved airflow path)
- Mechanical strength: Higher integrity and reliability: Busway is a reliable system with physical protection to damage due to the aluminum / steel housing that protects the system from physical stresses.
- Flexible – components can be added, cancelled, or relocated, saving time and money.
- Multiple Tap Off - points make electrical power flexible and available at multiple points to distribute power without disconnecting power supply.
- Insulation performance $\geq 20\,\text{M}\Omega$ while for cable is $\geq 5\,\text{M}\Omega$ (General Electric)
- EMF: Busway emit by far less EMF than a single core and three-core conductors, example: a 100 A cable will generate 200 mG and 70 mG respectively for single core and three core cables at 1 m from the source, while a Busway will generate at the same current rating a 8 mG (Equipment safe range as per IEC 61000-4-8 is 37.5 mG)

Busway for Data Centers

- Availability drastically increased
  - Busway unavailability is 10.28 hours/year
  - PDU + Cables 16.74 hours/year
- Reduce installation time on site. Busway are plug and play.
- Tap-off units can be removed without having to shutdown the system ensuring maximum continuity of service when racks are added or removed.
- Reduce human error as electric circuits are clearly and easily identified, thus reduce risk of shutting off the wrong circuit.
- Zero foot print of white space compared to PDUs. Minimize height of raised floor if run overhead.