| **Nameplate rating of the plant (MW AC)** | **Typical POI voltage class¹** | **Real-world examples of where this shows up** | **Rationale / notes** |
| --- | --- | --- | --- |
| **≤ 5 MW** (community solar, small behind-the-meter wind) | **4–15 kV** distribution | 4 kV, 12.47 kV, 13.8 kV | Fits inside normal pad-mount or pole-top recloser ratings; breaker duties < 600 A. |
| **5–15 MW** | **15–34 kV** distribution | 22 kV, 24.9 kV, 33 kV | Primary metering still on the distribution system, often with 3-winding pad transformer. |
| **15–50 MW** | **34–69 kV** *sub-transmission* | 34.5 kV collector to 69 kV POI | Pushed up into sub-transmission to keep feeder thermal loading < 15–20 MVA per circuit. |
| **50–150 MW** | **115–138 kV** | Most 100 MW solar projects in the U.S. Southwest connect at 115 kV | 100 MW at 1.0 pf ≈ ~870 A on a 115 kV line (within common 795 ACSR limits). |
| **150–300 MW** | **230 kV** | 200 MW wind farm in ERCOT, 250 MW solar in Australia | Keeps line currents < 800 A, breaker interrupting duty moderate. |
| **> 300 MW** | **345 kV (U.S.) / 400 kV (EU) / 330 kV (AUS)** | 400 MW wind complex in Texas Panhandle, 500 MW solar-plus-storage in MISO | Regional backbone voltage; often requires new switching station. |
| **> 700 MW** (clustered hybrids) | **500–765 kV** backbone | 1 GW West-Texas wind cluster at 500 kV | Usually part of a transmission-expansion “CREZ” or renewable energy zone plan. |