

Table 4-12: Regular Refuelling Operations – Challenges and Best Practice Solutions.

Challenges	Best Practice Solutions
<p>Hydrogen Supply</p> <ul style="list-style-type: none"> • Supply chain resilience has sometimes been a challenge where H₂ is trucked in from an external source • Hydrogen price has been driven up by a number of external factors and has led to some “mothballing” of FCBs <p>Performance: On-site Hydrogen Production Unit (where in place)</p> <ul style="list-style-type: none"> • Recurring electrolyser issues (e.g., power conditioning unit, transformer, water leakage, novel PEM stack) <p>Performance: Refuelling Unit Problems emerging during Commissioning and Initial Operations often continued, e.g.:</p> <ul style="list-style-type: none"> • Compressor issues • Refuelling slower than contractual agreement despite pre-cooling • Unreliable/failed refuelling (not meeting specifications for minimum bus tanks pressure/desired state of charge and/or for the maximum duration of a fill) • Slow after-sales service <p>Data Logging / Data Supply Problems reported during Commissioning and Initial Operations have continued</p>	<ul style="list-style-type: none"> • It is likely that only the access to multiple refuelling sites will fully solve the lack of H₂ supply issue. In the meantime, can be advisable to maintain a buffer storage of H₂ wherever possible (at extra costs, though). • ‘Mothballing’ FC Buses will require them to be regularly run (perhaps on rotation) to avoid rusting <p>Performance</p> <ul style="list-style-type: none"> • Detailed fault-finding sessions with HRS supplier to determine faults and fixes for them • Be prepared to invoke penalties if supplier is unresponsive • Have a plan B for refuelling if time to fill requirement is not met • (Temporarily) try to work well within the HRS’s limited capacity i.e. time to fill can be less important than refuelling the FCBs to full state of charge (depending on the required daily range and overnight servicing regime in the depot) <p>See Table 4-9 in Commissioning and Initial Ops.</p>