

WLTP  
Vehicle range and energy  
consumption

EVE 12

28 October 2014

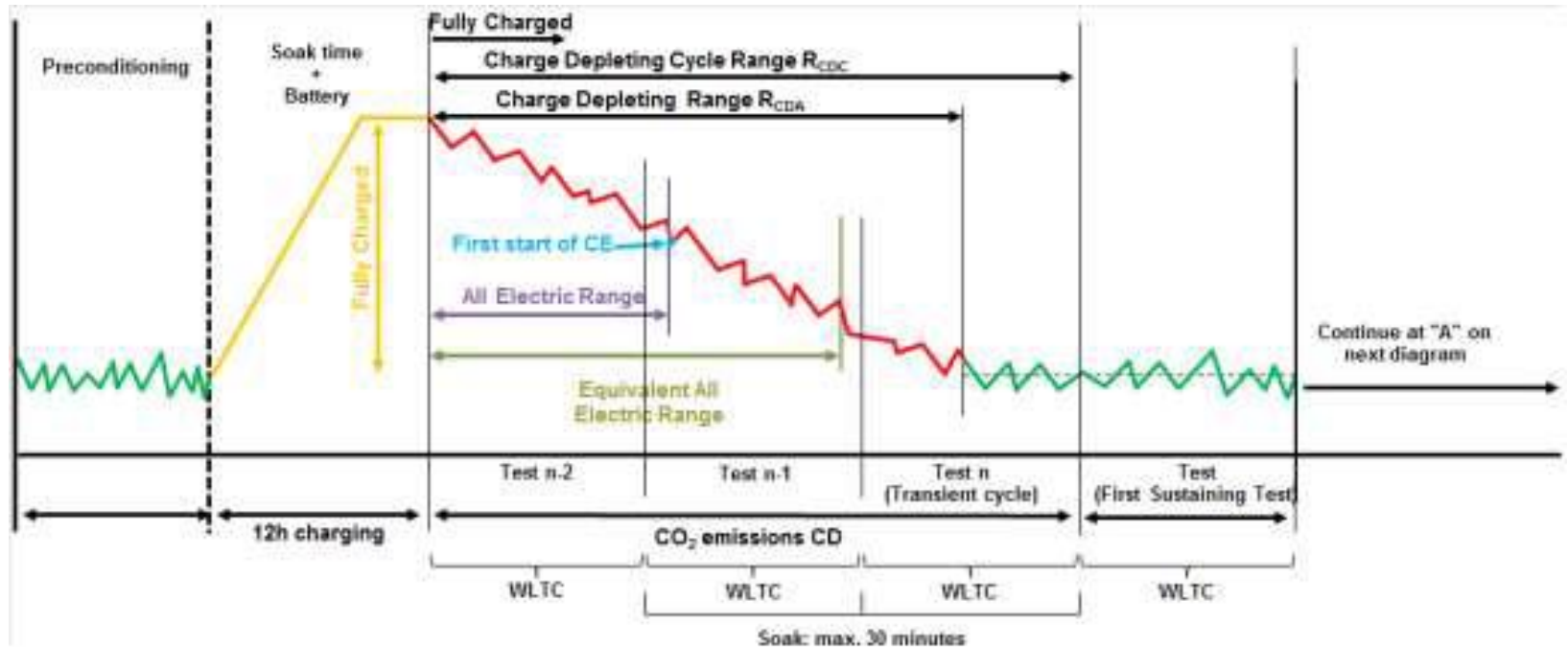
- Test cycle, test procedure and test conditions are in principle the same for conventional vehicles and electrified vehicles
- Areas where there is differences is described in annex 8 of the GTR
  - Charge depleting test (OVC-HEV and PEV)
  - Preconditioning (OVC-HEV)
  - REESS conditioning

- GTR No 15
  - Phase 1 includes test cycle and test procedure for type 1 test, normal ambient conditions
  - Proposal for phase 2 includes test procedure for low ambient temperature, high altitude, durability and in-service conformity
    - Consider for EV, durability for battery and electric motor

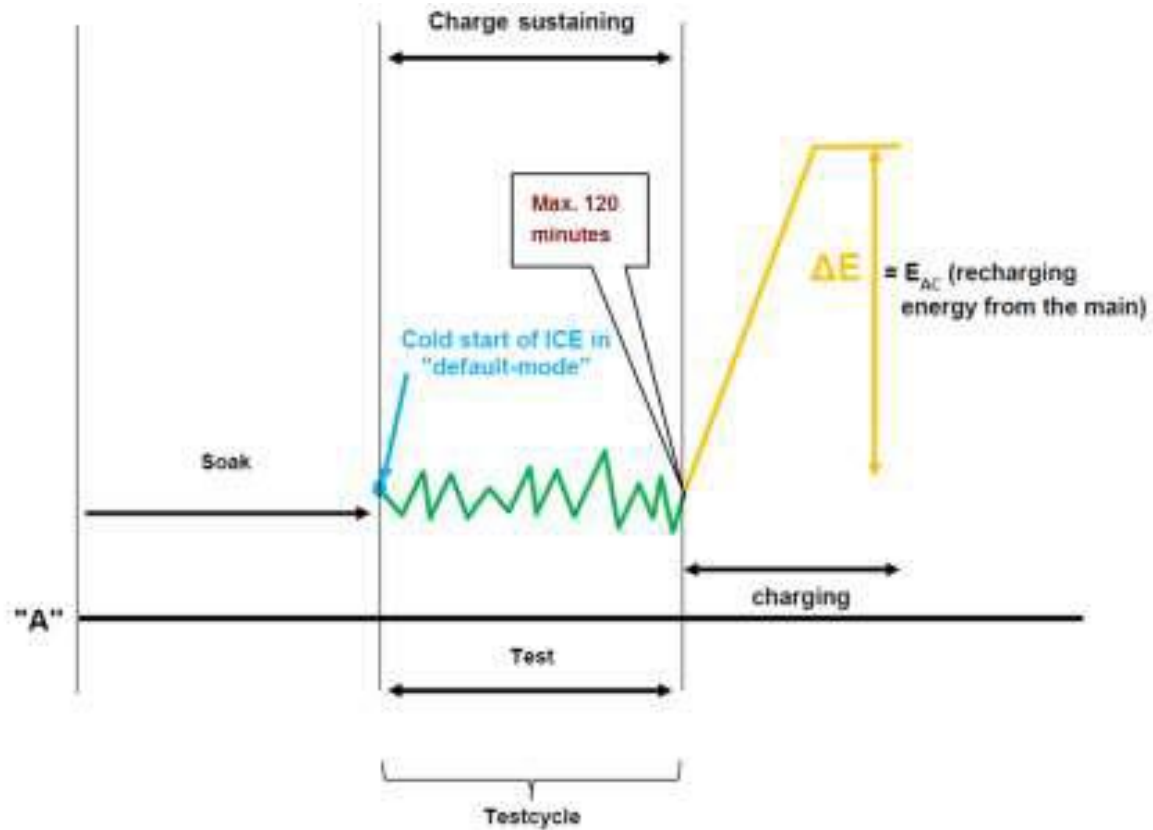
- Electric vehicles considered in the GTR
  - NOVC-HEV
  - OVC-HEV
  - PEV
  - FCV

- For electrified vehicles test procedure consist of two tests
  - Charge sustaining
  - Charge depleteting
- Test cycle WLTC and WLTC<sub>city</sub>

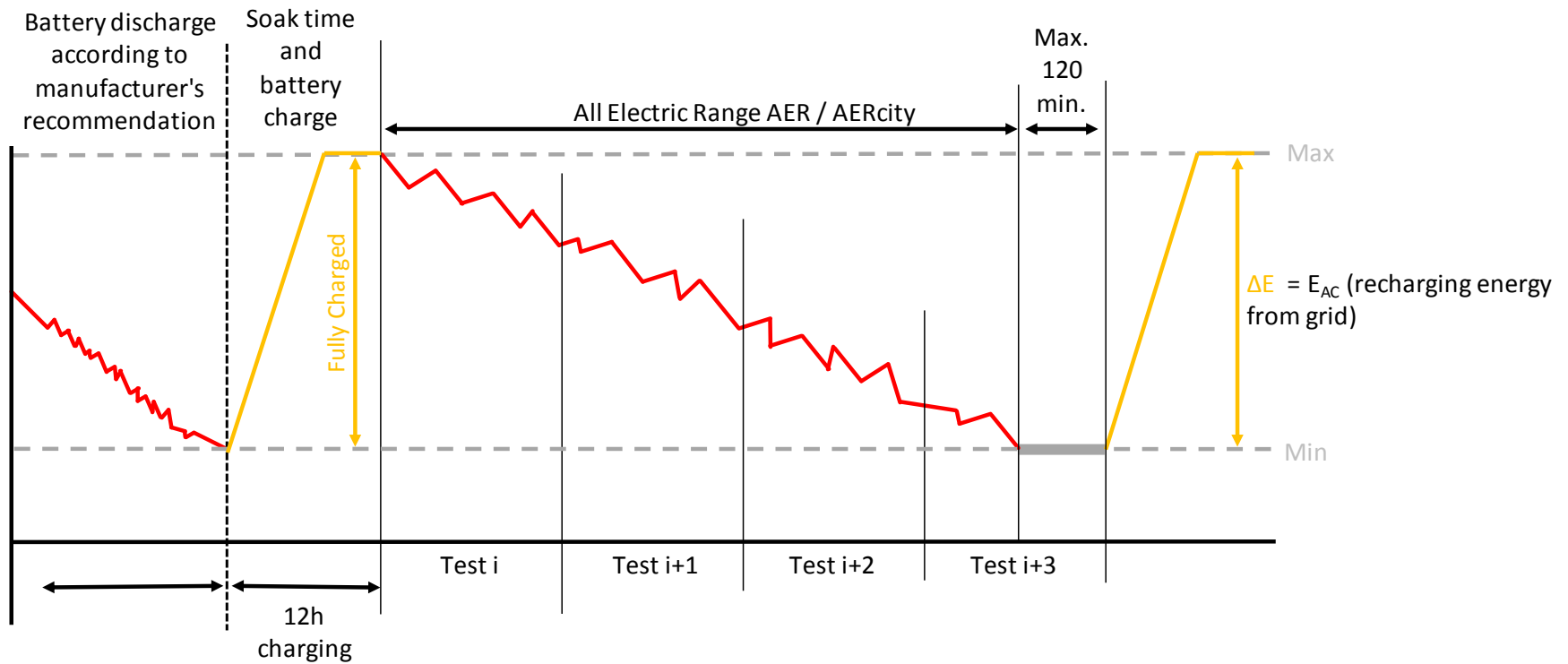
# Charge depleting CD



# Charge sustaining CS



# Charge depleting PEV





- OVC-HEV
  - CD and CS test
- PEV
  - CD test
- NOVC-HEV
  - CS test
- FCV
  - Procedure under development in phase 1b

- Test conditions same as for conventional vehicles
  - Ambient temperature
  - Soak
  - Test equipment

- Values derived from the tests
  - Emission compound (OVC-HEV and NOVC-HEV)
  - CO<sub>2</sub> and fuel consumption (OVC-HEV and NOVC-HEV)
  - Electric energy consumption (OVC-HEV and PEV)
  - Electric range (OVC-HEV and PEV)
    - All Electric Range
    - Charge Depleting Range

- Amendments for EV in phase 1b
  - Phase specific calculation for CO<sub>2</sub> and fuel consumption
  - Shortened test procedure for PEV
  - Combined approach for EV
  - Test procedure for FCV