The LED (Low Energy Demand Scenario) Motivation and Main Features

- Scenario of rapid transitions:
  End-use, efficiency and granularity focus

- End-use change leverages and drives upstream transformation

- SDGs as overarching narrative and driver:
  Climate mitigation (1.5 °C) integrated in SDGs, but no longer singular objective (with SDG co-benefits)

LED Highlights

- Higher levels of energy <u>services</u> than even GEA High

- Assuring "decent standards of living" for all (<u>well above </u>access and poverty thresholds, but with <u>efficient</u> provisioning systems)

- (technological & service) efficiency driven <u>"Peak" Energy</u>

- <u>Lowest</u> demand scenario (<250 EJ FE by 2050) ever published

- End-use transformations (efficiency, electrification) <u>drive</u> upstream decarbonization

- Stays below 1.5 with <u>no negative emission technologies</u>

- Significant SDG synergies (>6 SDGs)

LED Key Lessons Learned

- Focus on scenario characteristics rather than modeling (use hybrid methods, provide inputs to IAMs)
- End-use detail (services) and institutional settings (provisioning systems) fundamental
- Avoid "lack of nerve" of forecaster (technology, behavior, and institutions are all malleable)
- Data challenge for heterogeneity (distributions) needs to be addressed (community efforts)
- Sustainable Development scenarios not possible within IPCC RCP/SSP framework