

Industrial Transformation Technology and Investment Model (ITTIM) Version History

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The Industrial Transformation Technology and Investment Model (ITTIM) is a free and open-source tool that maps out transition pathways for regions to achieve non-emitting industrial sectors. This document summarizes the changes made to the tool since its initial (1.0.0) release.

1.1.0 (APRIL 2026)

- Added India as a modeled region, with a complete India input dataset
- Added calculations and graphs of emissions of three conventional pollutants: fine particulate matter (PM_{2.5}), sulfur dioxide (SO₂), and nitrogen oxides (NO_x)
- Added calculations and graphs of five public health impact types: mortality, nonfatal heart attacks, new asthma cases, new lung cancer cases, and strokes
- Added graph of industrial sector energy demand over time (all energy sources) to the “Time Series Graphs” tab
- Added user setting to disable “Future BAU” energy demand changes, allowing interventions to be applied to historical energy demand levels (e.g., to estimate present-day potential)
- Hydrogen alkaline electrolyzers now use country-specific future capital cost projections
- Hydrogen-related input data that vary by country are now better-organized and are defined on the “Other Region-Specific Data” tab
- Updated to latest industrial equipment capital cost factors from Energy Policy Simulator v4.1 (pre-release) and fixed a bug upstream in these data related to natural gas boiler capital costs.
- Updated dataset for non-metallic mineral process CO₂ from PRIMAP-hist 2.6.1 to PRIMAP-hist 2.7
- Added a note on primary steel production pathways involving iron ore electrolysis (molten oxide electrolysis, aqueous electrolysis) with cited energy use per metric tonne steel as compared to green hydrogen – direct reduced iron
- Fixed a unit conversion error that was causing industrial equipment capital costs to be roughly 10% too high
- Fixed bug where capital cost of hydrogen electrolyzers was being based on energy content of the produced hydrogen instead of the input electricity, resulting in electrolyzer capital costs 24% too low.
- Fixed bug where capital costs for tiers 3, 4a, 4b, only when visualized broken out by subindustry, would not reflect user’s setting altering capital costs in sensitivity analysis tests
- Switched to more accurate data source for temperature breakdown of heat demanded by the pulp and paper industry

1.0.0 (OCTOBER 2025)

- Initial release