

Industry

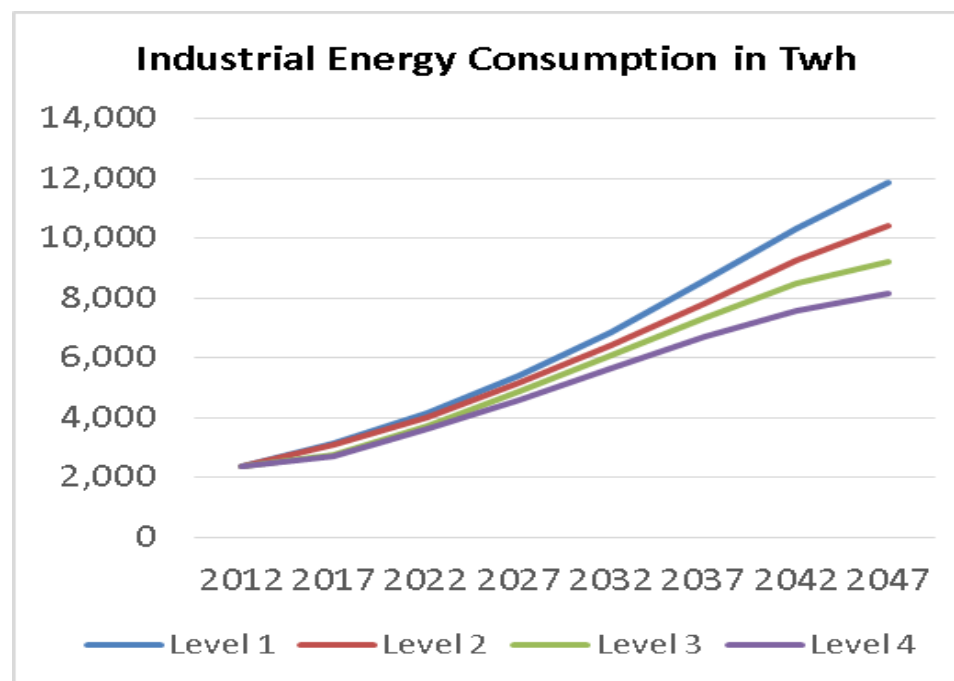
The industry sector in India doubled in value during 2000/01 to 2010/11 and grew at an annual growth rate of 7%. In 2010/11 the industry sector consumed ~1656 TWh of energy, which is 45% of the total commercial energy consumed (TEDDY, 2012). Seven sub-sectors - aluminium, cement, chlor-alkali, fertilizer, iron and steel, pulp and paper, and textiles are the largest energy consumers, accounting for around 60% (TERI calculations) of total energy use in the industry sector. These are analysed at individual sub-sector levels. The remaining sub-sectors are categorized as “Others”. The present analysis offers scenarios of likely reduction in energy demand by effecting efficiency measures in industry. The autonomous Energy Efficiency (EE) improvement that occurs in individual sectors has been considered as a major driver in the analysis (CSTEP). Existing policy mechanisms such as the Perform-Achieve-Trade (PAT) scheme of the Bureau of Energy Efficiency (BEE) wherein the excess energy savings could be traded, and non-compliance penalized, is also factored into the analysis. As the specific energy consumption (SEC) goals are increasingly taken up by industrial units – penetrating into smaller units from existing sectors and units from new sectors - the energy consumption is likely to reduce further. The energy required by industry as feedstock has not been analyzed in this exercise.

LEVEL 1

This scenario assumes no new government policies, other than the one PAT cycle (2012-15). The autonomous EE penetration levels are also low. The norms are applicable to only the subset of the units in the seven industry sub-sectors. However, the efficiency of the units undergoes a marginal reduction/revision by the end of the terminal year (2047). The remaining units in the sub-sector do not opt for EE. The efficiency of these units improves at 5-15% of the efficiency improvement for the units that opt for EE. The “Others” undergo reduction in energy intensity by a CAGR of ~4%.

LEVEL 3

Building on Level 2, this scenario further increases the EE penetration under the seven sub-sectors. The units not opting for EE increase their efficiency across processes at a rate of 20-30% of the efficiency improvement by units that opt for EE. The “Others” undergo an efficiency improvement of about 4-5% CAGR.



LEVEL 2

This level includes a gradual enhancement of penetration of EE in Industry (Table 1). Industrial units opting for EE would achieve the best efficiency possible in every sub sector. The units not opting for EE also improve their efficiency, but by a much lesser degree. The “Others” undergo a reduction in intensity of about 4-5% CAGR.

LEVEL 4

Level 4 indicates the maximum possible improvement that can be achieved in the industry sector. This level further increases EE penetration. In addition, this level assumes that the units not taking up EE undergo an efficiency increase of between 20-50% of the units that opt for EE. The “Others” improve their intensity by about 5-6% CAGR.

Table 1. EE Penetration across Levels

	2012	EE penetration (%) in 2047			
		Level 1	Level 2	Level 3	Level 4
Cement	72	19	72	79	83
Fertilizer	75	66	75	79	84
Aluminum	69	19	70	79	83
Iron and Steel	56	11	60	69	80
Pulp and Paper	29	6	30	39	48
Textile	93	50	65	68	69
Chlor Alkali	89	50	89	93	94

Note: In cases where the penetration of EE industries appears to decrease from the base year, the units in the specific sub-sectors do not take up EE measures in a consistent and long term approach.