# *REPLACEMENT OF DIESEL IN TELECOM*

The Indian telecom sector is the second largest in the world has increased exponentially over the past decade. India had 919.17 million mobile subscribers and 4,00,000 telecom towers in 2012 which form the backbone of its telecom market. 40% of the total telecom towers are located in urban areas whereas the rest are situated in rural or semi-urban areas. This ratio is assumed to be constant over the years. Presently, rural telecom towers are powered by grid electricity supply for 12 hours a day and the rest by diesel generators; urban telecom towers run on grid electricity supply for 20 hours a day and 4 hours a day on diesel generator. This analysis factors rate of conversion of telecom towers from diesel support to electricity/solar power, with similar number of towers in all levels.

### *Level 1*

This is a pessimistic scenario where we assume that no regulations have been enforced and the present energy consumption scenario continues. Therefore, diesel meets significant proportion (60%) of total energy demand required by the telecom towers in 2047, and the rest is met by grid electricity supply and off-grid solar plants. The percentage of diesel operated telecom towers replaced by off-grid solar in 2047 is assumed to be 15% in rural areas and 10% in urban areas.

### *Level 2*

We assume a higher solar penetration rate i.e. 40% in rural areas and 20% in urban areas by 2047. Higher electrification rate and penetration of renewables helps to reduce diesel consumption by 30% in rural areas and 22% in urban areas in 2047 as compared to level 1.

### *Level 3*

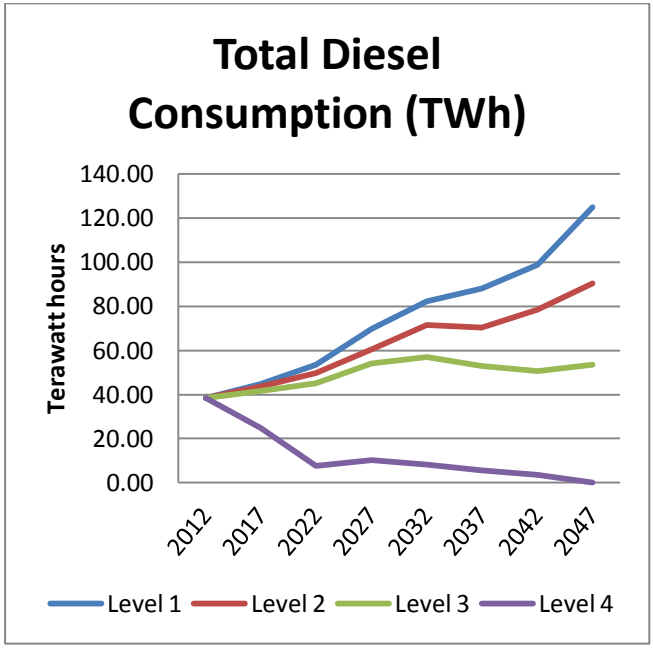
The penetration rate of off-grid solar plants is assumed to increase to 80% in rural areas and 50% in urban areas in 2047. Although, the total diesel consumption in 2047 is reduced by 65% in rural areas and 33% in urban areas as compared to level 1, but the off-grid solar share in the total energy demand is only 9%.

### *Level 4*

This is the most aggressive scenario where all government regulations are met, and satisfactory quality of electricity supply is assumed for the country. Telecom towers run on grid supply and off-grid solar plant, both in urban and rural areas. The target of 'No diesel for Telecom' is achieved by 2022 in rural areas and 2037 in urban areas. Although there is constant grid electricity supply, telecom towers still run 2 hours on renewables in urban and 8 hours in rural areas to meet their carbon emission targets.

***Table: Total Energy Demand in 2047 (TWh)***

| Levels | Diesel | Grid Supply | Off-grid Solar |
|---|---|---|---|
| Level 1 | 125.07 | 81.75 | 2.87 |
| Level 2 | 90.41 | 81.75 | 7.82 |
| Level 3 | 53.41 | 81.75 | 13.12 |
| Level 4 | 0.00 | 81.75 | 20.66 |




Note: Please see detailed documentation for references.