

## An Illustrative Comparison of Solar and Nuclear Energy

<b>PARAMETERS</b>	<b>SOLAR</b>	<b>NUCLEAR</b>
Average Life Cycle GHG Emissions (grams of CO <sub>2</sub> equivalent/kWhr) <sup>1</sup>	50	14
Average Capacity Factor (%) <sup>2</sup>	18-25	80-90
Electricity Generation from a 1000 MWe plant (in million kWhr)	2190 (at 25% capacity factor)	7000 (at 80% capacity factor)
Actual Generation as a proportion of installed capacity (%)	~ 33	Almost 100
Land Requirement (acres/MWe of installed capacity) <sup>3</sup>	6-7	0.3-0.4
Life Cycle (years) <sup>4</sup>	20	>60
Effective Cost for 1000 MWe installed capacity adjusted to average capacity factor (Crore Rs./MWe) <sup>5</sup>	30  (Rs. 7.5 cr/MWe at 25% capacity factor)	25  (Rs. 20 cr/MWe at 80% capacity factor)
System Effects Costs for the Grid (due to variable generation) at 10% penetration (OECD study for France) (US\$/MWhr) <sup>6</sup>	43.03	2.07

<sup>1</sup> "Development Impacts and Sustainable Governance Aspects of Renewable Energy Projects" – Ministry of New and Renewable Energy, Govt. of India, September 2013, page 6.

<sup>2</sup> Ibid., page 24; Also, World Nuclear Association – Renewable Energy and Electricity (<http://www.world-nuclear.org/info/Energy-and-Environment/Renewable-Energy-and-Electricity/>)

<sup>3</sup> "Development Impacts and Sustainable Governance Aspects of Renewable Energy Projects" – Ministry of New and Renewable Energy, Govt. of India, September 2013, page 26.

<sup>4</sup> Ibid., page 20

<sup>5</sup> World Nuclear Association – Renewable Energy and Electricity (<http://www.world-nuclear.org/info/Energy-and-Environment/Renewable-Energy-and-Electricity/>)

<sup>6</sup> OECD-NEA report "Nuclear Energy and Renewables: System Effects in Low-carbon Electricity Systems", 2012 (<https://www.oecd-nea.org/ndd/reports/2012/system-effects-exec-sum.pdf>)