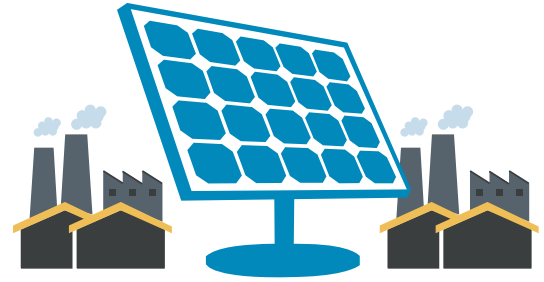


CASE WATCH 07 : SOLAR POWER COGENERATION

Jointly invest in solar power generation for shared use of renewable electricity in industry and communities.

Increase renewable electricity use by jointly investing in solar panels.



TAPPING INTO RENEWABLES

KEY INSIGHTS

- use renewable electricity
- reduce CO₂ emissions
- integrate sites and clusters

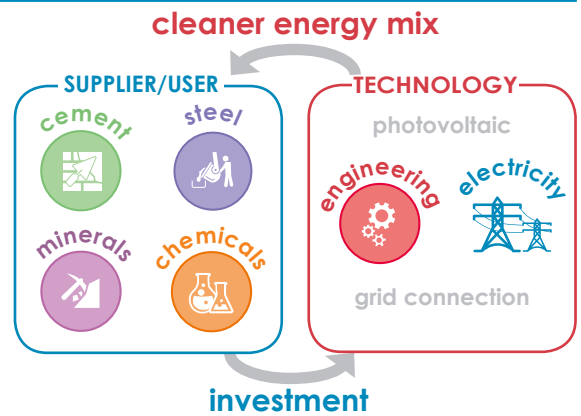


Figure 1: Synergy scheme ¹

CROSS-SECTOR COLLABORATION

Process industries in certain regions have a high interest in sourcing renewable electricity.

Electricity-intensive industries have a growing demand for renewable power.

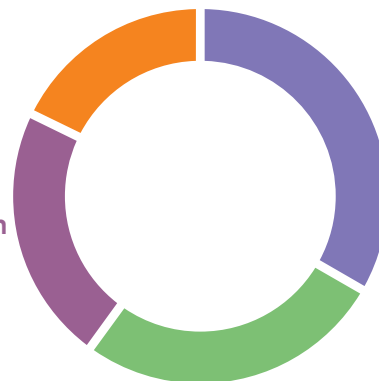
Electricity input needed per sector

80-100 kWh/ton crude oil

2.5 Mton site
45 MW capacity

100-150 kWh/ton mineral

0.3 Mton site
7 MW capacity
Depends on the grinding size



150-200 kWh/ton steel

Major input change when arc furnace technology is used

120-130 kWh/ton cement

0.9 Mton site
25 MW capacity

Figure 2: Sector potential per sector ^{1,2,3,4,5}

SUSTAINABILITY IMPACT

Wins for industry

- › for industry: 6-16% ROI and lower OPEX^{6,7}

Environmental gains

- › CO₂ emissions reduction: 12-24 g CO₂/kWh used⁷

Wins for society

- › public health benefits due to renewable energies
- › community integration through PPP investment
- › job creation¹

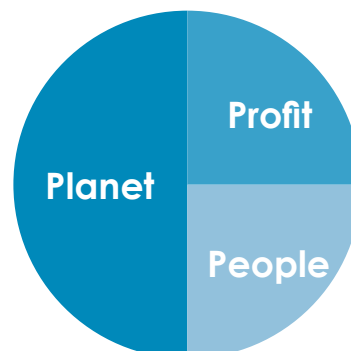


Figure 3: Sustainability ¹

REFERENCES

1. H2020: EPOS project. 2015 – 19.
<https://www.spire2030.eu/epos>
2. M. Tahir and V. Absalyamova, "The use of solar energy in steel industries," in 8th International Conference on High-capacity Optical Networks and Emerging Technologies, 2011, pp. 51–54.
3. N. W. Miller, D. Guru, and K. Clark, "Wind Generation Applications for the Cement Industry," in 2008 IEEE Cement Industry Technical Conference Record, Miami, Fl, 2008, pp. 103–112.
4. E. Worrell and C. Galitsky, Energy efficiency improvement and cost saving opportunities for petroleum refineries," LBNL--56183, 862119, Feb. 2005.
5. "Capturing the sun - The economics of solar investment." Ernst & Young Global Limited, 2016. [Online]. Available: [https://www.ey.com/Publication/vwLUAssets/EY-capturing-the-sun-the-economics-of-solar-investment/\\$FILE/EY-capturing-the-sun-the-economics-of-solar-investment.pdf](https://www.ey.com/Publication/vwLUAssets/EY-capturing-the-sun-the-economics-of-solar-investment/$FILE/EY-capturing-the-sun-the-economics-of-solar-investment.pdf). [Accessed: 20-Feb-2019].
6. IRENA. "Renewable power generation costs in 2017," International Renewable Energy Agency, Abu Dhabi, 2018. Available: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Jan/IRENA_2017_Power_Costs_2018.pdf. [Accessed: 20-Feb-2019].
7. "Huella de carbono de los paneles solares bajo microscopio - EURACTIV.com." [Online]. Available: <https://www.euractiv.com/section/energy/opinion/mondaycop22-lower-co2-emissions-with-lower-carbon-solar-energy/>. [Accessed: 20-Feb-2019].