

Technology Fact Sheet for Mitigation

E. PV Cellsⁱ

Sector: Energy	
Subsector: Power	
Technology characteristics	
Introduction	Technology for direct transfer of solar power to electricity via photovoltaic cells. These cells generate dc power which can be stored, or used, after inversion into AC.
Technology characteristics/highlights	• Renewable • Combustion- free • High cost • Still developing
Institutional and organizational requirements	• It will require new policies and laws (feed in tariffs) with some incentives. • Local expertise does not exist since PV cells are yet to be in some residents. • More capacity building will be required for wider penetration.
Operation and maintenance	Technology is still developing, and therefore may require further research and technical upgrading.
Endorsement by experts	Lower level of endorsement compared to wind and hydro due to the higher capital cost, and low conversion efficiency.
Adequacy for current climate	• Region is rich in solar radiation. • Could witness widespread outside major cities. • Multi-floor buildings could also make use of this technology.
Scale/Size of beneficiaries group	Small- scale applications due to high cost and availability of other renewable resources.
Disadvantages	• High cost. • Low conversion efficiency. • High maintenance cost.
Capital costs	
Cost to implement mitigation technology	USD4,000/kW
<u>Additional</u> cost implement mitigation technology, compared to “business as usual”	USD3,000/kW
Development impacts, direct and indirect benefits	
Direct benefits	Continuous generation with no shedding periods.

Reduction of vulnerability to climate change, indirect	Fuel saving and combustion reduction
Economic benefits, indirect	• New businesses on manufacturing, installment, and maintenance. • Resources diversification.
Social benefits, indirect Income, Education	• Capacity building is deemed necessary • New jobs
Environmental benefits, indirect	• Reduction in GHG, • Diversity of resources
Local context	
Opportunities and Barriers	• High cost of PV cells and the relevant electronic components for power inversion. • Lack of incentives. • Acquire large territories.
Market potential	High market potential since the cost is consistently dropping, and efficiency rising.
Status	Not adopted yet.
Timeframe	Medium term.
Acceptability to local stakeholders	Moderate acceptance due to high capital cost, technology immaturity, and maintenance requirements.

ⁱ This fact sheet has been extracted from TNA Report – Technology Needs Assessment Reports For Climate Change Mitigation – Lebanon. You can access the complete report from the TNA project website <http://tech-action.org/>