

GLOBAL INVESTOR COALITION ON CLIMATE CHANGE

Low Carbon Investment (LCI) Registry Taxonomy

Last updated May 14, 2014

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Category of Investment	Type of investment	Sub-type of investment	Definition/explanation/restrictions
Energy			
Inclusions	Solar energy	Photovoltaic electricity	Facilities where 100% of electricity is derived from solar energy resources
		Concentrated solar thermal power	Facilities with max 15% gas-fired back-up
		Solar heating	Technologies and facilities where 100% of the heating load is met by direct solar energy and/or boosted by 100% renewable energy; usually applied in heating water or heat exchange fluid
		Infrastructure & manufacturing	Facilities wholly dedicated to solar energy development
	Wind energy	Wind farms	Facilities where 100% of electricity is derived from wind energy resources
		Infrastructure & manufacturing	Facilities wholly dedicated to wind energy development
	Bioenergy	Bioenergy feedstock	Bioenergy feedstock that do not deplete existing terrestrial carbon pools such as certified waste and residues from agriculture (plant and animal), forestry and related industries including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste
		Bioenergy facilities	Facilities where 100% of electricity is derived from bioenergy resources
		Infrastructure & manufacturing	Facilities wholly dedicated to bioenergy development
	Hydropower	Run of river & small hydro <15MW	Run of river and small hydro facilities that require small or no reservoirs
		Existing large hydro >20MW	In temperate zones only
		Re-powering of existing large hydro system	New infrastructure applied to existing facilities that increases the efficiency and energy yield from existing

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			hydro-electric facilities	
	Geothermal	Geothermal electricity	Geothermal electricity generation facilities	
		Geothermal heat management	Geothermal Heat Pump (GHP) technology used in domestic and commercial applications in waste heat recovery, energy efficiency, energy storage and demand management.	
	Other renewable energy	Sea & ocean derived power	Facilities where 100% of electricity is derived from sea and ocean energy resources	
	Energy transmission, distribution & management	Renewable energy transmission & grid infrastructure - connection	New or additional infrastructure (e.g. power lines, pipelines, transport lines) required to <i>connect</i> eligible renewable energy inputs to national grids and systems	
		Renewable energy transmission & grid infrastructure – integration & load balancing	New or additional infrastructure required to <i>support integration</i> of eligible renewable energy or energy efficiency systems and their load-balancing	
		Smart systems/meters that support improved energy management		
		Heating management	Thermal heat pumps (e.g. GHP technology)	
	Energy storage	Hydro storage systems		
		Thermal heat storage	Technologies and systems that store eligible renewable energy as heat (e.g. molten salt heat storage connected to a renewable energy power station)	
		New technologies that increase energy storage capacity		
	Not eligible	Nuclear energy	Uranium mining	The mining of uranium is broader than for electricity generation (e.g. medical and military). It is currently excluded from the LCI Registry to be consistent with the Climate Bonds Initiative Taxonomy and the ineligibility criteria under the Clean Development Mechanism
		Fossil fuels	Gas-fired power	Due to the pace of mitigation activities required so emissions are brought to and maintained below 20Gt (to stabilise atmospheric greenhouse gas emissions to “safe levels”), gas investments cannot be regarded as low carbon for the purposes of the LCI Registry
All coal / oil power			Due to the pace of mitigation activities required so emissions are brought to and maintained below 20Gt (to stabilise atmospheric greenhouse gas emissions to “safe levels”), coal and oil investments cannot be regarded as low carbon for the purposes of the LCI Registry	

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More work required	Carbon capture	Carbon capture & storage	More work required
	Waste energy capture	Energy capture from waste to energy facilities	Pending further technical input on technology to determine which are aligned with a low carbon economy
	Hydropower	Large hydro power facilities >20MW (CDM defined)	Pending consensus on lifecycle GHG emissions from different types of dams – particularly in tropical regions (due to decomposition of organic carbon in the reservoir)
	Bioenergy	Feedstock	Pending further research and clarification on lifecycle emissions of different inputs Examples of feedstock in question include forestry products that are not certified as waste or residues and other feedstock with questionable biodiversity impacts such as corn-based ethanol and palm oil as biodiesel
	Nuclear energy	Power producers	
Infrastructure			More work required
Buildings			
Inclusions	Green buildings	New & existing commercial and retail buildings*	Must be in top 25% of buildings when compared against the market (city) average as demonstrated by the local GHGe certification system; or <i>deemed by estimate</i> of its performance on the basis of kgCO _{2e} /m ² of income area including scopes 1, 2 & 3 emissions (landlord/base building only) E.g. Sydney, Australia – include NaBERS 5, 6 stars buildings. If including NaBERS 4.5 stars asset, provide rationale supporting its eligibility in top 25%
		New & existing residential buildings*	Must meet the requirements of acceptable building standards and/or rating schemes that can achieve energy/carbon targets; full cycle of scopes 1, 2, 3 excluding appliances; or <i>deemed by estimate</i> of its performance consistent with the top 25% of buildings when compared against the local (city) market average, with rationale E.g. UK – include Code for Sustainable Homes level 6. If including UK Code for Sustainable Homes level 5 assets, provide rationale supporting its eligibility in top 25%

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		Project finance for building upgrades/retrofits	Must qualify for special purpose government energy efficiency funding programmes and demonstrate a minimum of 50% emissions performance improvement from business as usual E.g. US PACE, Australian Environmental Upgrade Agreements, UK Green Deals
	Energy efficiency technology/ products needed to ensure buildings meet industry performance standards	Thermal insulation materials	
		Efficient HVAC systems	
		Centralised energy control systems; home energy displays and smart meters	
		Advanced, efficient appliances and lighting	E.g. LED lighting
		Advanced materials	E.g. reflective roof materials/systems
	Other		
Energy capture systems	Systems that increase overall energy efficiency	E.g. communal heat systems	
Industry			
Inclusions	Energy efficiency products	Manufacturers of energy efficient products and technologies	Must have a minimum 50% value derived from the assets listed in the <i>LCI Registry Taxonomy</i>
		Energy efficiency products and technologies	E.g. improvements to industrial energy efficiency through adoption of high- efficiency HVAC
	Energy efficiency processes & systems		E.g. Variable speed drives, insulated distributed systems, monitored and controlled compressed air systems, valve fitting and improvements, membrane reuse, grid security
	Co/Tri generation		
	Waste heat recovery		
	Non-energy GHG reductions		E.g. fugitive emissions from the safe de-gassing of GHGe refrigerants
Industrial processes	Eco-efficiency improvements/cleaner production	E.g. "green concrete", the manufacture of cement with optimum clinker content	

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Not eligible	Fossil fuel efficiency	Energy efficiency measures for any type of GHG-intensive power source	E.g. tar sands efficiency, cleaner coal technology
	Energy savings applied to fossil fuel extraction activities, transport, power generation		Emission reduction requirements require a rapid phase-out of all fossil fuel usage. Anything that helps extend the life of fossil fuel usage needs to be excluded
More work required	Energy savings	Existing industrial operations	E.g. in utilities
More work required	Process efficiency	Automation etc.	Comparing one production technology to another needs further work
Waste, Pollution Control & Carbon Sequestration			
Inclusions	Circular economy activities	Industrial recycling	
		Recycled products	
		Composting	
	Technologies & products	Products/technologies that reduce GHG emissions	E.g. scrubbers, filters
Not eligible	Landfill		Without gas capture
	Waste incineration		Without energy capture
More work required	Waste to energy	Incineration with energy capture	
		Waste gasification	Gasification systems that use the heat by product for cooling or heating and where emission levels are below a specified level
	Carbon capture & storage	Proven technology to sequester carbon	More work required
		Algae farms using waste CO2	
	Landfill gas capture		
Transport			
Inclusions	National rail & freight systems	New developments or improvements	
		Rail tracks and assets	Note the “not eligible” section for this investment type in the <i>LCI Registry Taxonomy</i>
		Non-diesel rolling stock manufacturers	Must have a minimum 50% value derived from the assets listed in the <i>LCI Registry Taxonomy</i>
	Urban rail systems (e.g. metro & light rail)	New developments or improvements	
		Rail tracks and assets	Note the “not eligible” section for this investment type in the <i>LCI Registry Taxonomy</i>

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Inclusions		Non-diesel rolling stock manufacturers	Must have a minimum 50% value derived from the assets listed in the <i>LCI Registry Taxonomy</i>
	Electric vehicles (EVs) (e.g. passenger and commercial fleets)	Manufacturing	EV manufacturers or diversified manufacturers with a minimum 50% value derived from the assets listed in the <i>LCI Registry Taxonomy</i> ; or a bond specific to EV manufacturing
	Fuel efficient vehicles (e.g. passenger and commercial fleets)	Manufacturing	Highly efficient conventional vehicles (e.g. using internal combustion engine) that meet mandatory emission standards plus have a minimum 50% value derived from the assets listed in the <i>LCI Registry Taxonomy</i>
			Hybrids (plug in & non-plug in) plus have a minimum 50% value derived from the assets listed in the <i>LCI Registry Taxonomy</i>
	Alternative fuel vehicles (e.g. passenger and commercial fleets)	Manufacturing	E.g. Hydrogen, biodiesel, biogas etc. and have a minimum 50% value derived from the assets listed in the <i>LCI Registry Taxonomy</i>
	Bus rapid transit (BRT)	BRT systems approved by applicable standards	Include components of any BRT project meeting Bronze, Silver or Gold Standard under the <i>BRT Standard</i> , as developed by the Institute of Transportation and Development Policy
	Bicycle transport	Manufacturing or infrastructure	Bicycles and parts (including electric bicycles) with a minimum 50% value derived from the assets listed in the <i>LCI Registry Taxonomy</i>
			E.g. bicycle infrastructure in cities, bond finance for cycle schemes etc
	Aviation biofuel	Manufacturing/processing facilities	Dedicated technology for aviation fuels – e.g. bio-kerosene production (subject to feedstock standards)
Transport logistics	Systems and technologies that improve efficiency of vehicle and passenger movements	E.g. improved scheduling, efficient movement and planning of rail, boat, other eligible passenger and freight movements	
Not eligible	Rail	Fossil fuel transport	Fully dedicated rail lines, rolling stock or related infrastructure for transporting coal, oil or other fossil fuels
More work required	National & freight rail systems	Manufacturing	Diesel powered engines or rolling stock
	Electric vehicles	Infrastructure	Charging infrastructure
	Fuel efficient vehicles	Manufacturing	Hurdle rate GHG saving needs to be specified
	Biofuels	Non-food feedstock	Hurdle rate GHG saving needs to be specified
Feedstock will need to comply with accepted international standards that address issues such as: land-use, GHG footprint, food competition issues			

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		Advanced biofuels	E.g. Gas from anaerobic digestion or agricultural waste and sewage to power heavy goods vehicles
Information & Communication Technology			
Inclusions	Broadband	Fibre-optic cable	Where high speed data transfer via fibre optic broadband enables business activities to take place via internet rather than driving or flying to meet
	Data-centres using renewable energy		Only low carbon sources that are approved by applicable standards
	Low-carbon ICT infrastructure		E.g. Renewable energy powered mobile base stations
	Smart grid		Products and technologies that support smart grid applications
	Technology substitution		E.g. Conferencing software and centres designed directly to reduce private vehicle and air-travel
Agriculture & Forestry			
Inclusions	Forestry activities	Existing plantation forests and sustainable forest management	Certified to internationally accepted certification standards e.g. Verified Carbon Standard (VCS) and Forest Stewardship Council (FSC)
		Projects that avoid, substantially reduce carbon loss or deliver substantial carbon sequestration	Includes: Plantations on non-forested degraded lands - subject to governance criteria and adherence to internationally recognised standards that ensure sustainability of investments; Afforestation; Re-vegetation on previously forested land; and REDD
		Multiple forestry	E.g. a dedicated forestry fund whose value is wholly derived from eligible forestry activities as listed in <i>LCI Registry Taxonomy</i>
	Agricultural activities	Verifiably reduced fertilizer use	E.g. Fertilizer management systems resulting in reduced NO ₂ application and hence emissions
		Verifiable zero-till agriculture	I.e. Reduced emissions or enhanced removal of emissions related to terrestrial carbon
		Verifiable rangeland management	E.g. Cell grazing to manage herd movements and enhance soil carbon sequestration due to improved grasses management
		Intensive agriculture efficiencies	E.g. Manure management on dairies (CH ₄); milk powder processes to reduce transport weight of agricultural products
		Other intelligent management systems	Infrastructure and practices aimed at efficient fertilizer dispatch (i.e. reduced NO ₂) and increased CO ₂ sequestration. E.g. Climate smart machinery, GIS management systems
	Not eligible	Forestry	Timber harvesting
Agriculture		Peat land	All agriculture on peat land

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More work required	Forestry	CDM forest products	
		REDD bonds	Pending further deliberation on measurement and verification.
	Agriculture	GMO products	
		Organic agriculture, including seeds and fertilizer	Pending further research on lifecycle GHG emissions and potential standards covering wider issues
		Irrigation technology	To define most water-efficient systems
Multiple*			
Inclusions	Public equity	Passive or active index fund	Must have an explicit carbon weighting or overlay
		Low carbon fund	Must have minimum 50% value derived from low carbon assets and activities as listed in <i>LCI Registry Taxonomy</i>
		Holdings in technology or service companies	Companies with a minimum 50% value derived from low carbon technologies, activities and services E.g. Energy Service Companies (ESCOs) engaged in performance contracting with businesses to improve energy performance
	Private equity fund	Low carbon fund	Must have minimum 50% value derived from low carbon assets and activities as listed in <i>LCI Registry Taxonomy</i>
	Fixed income	A bond	Or other product applied to low carbon activities
	Carbon market or related financial instruments		

N.B. *A small number of adaptations have been made to enable the use of the Climate Bonds Initiative (CBI) Taxonomy and Standards for the LCI Registry. The main reasons for the adaptations refer to the differing aims of the respective initiatives and relate specifically to the differing performance thresholds for small number of investment categories.

For example, CBI taxonomy requires commercial buildings to be in the top 10-15% of the local market average consistent with aims to lower the climate related risk to the investor due to the investment (bond) length; whilst LCI Registry requires commercial buildings to be in the top 25% of the local market average consistent with the aim of demonstrating today's level of low carbon investing.



Investor Network on
CLIMATE RISK



Investor Group on
Climate Change



GLOBAL INVESTOR COALITION ON CLIMATE CHANGE