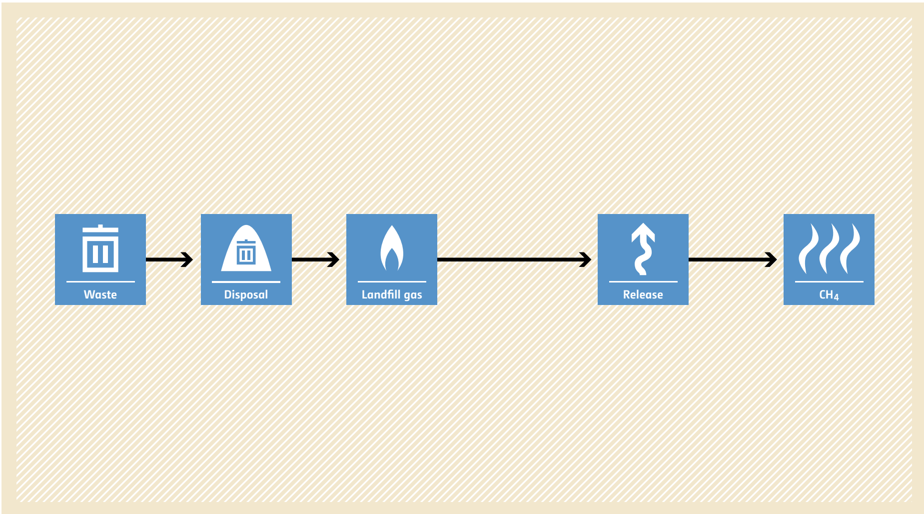
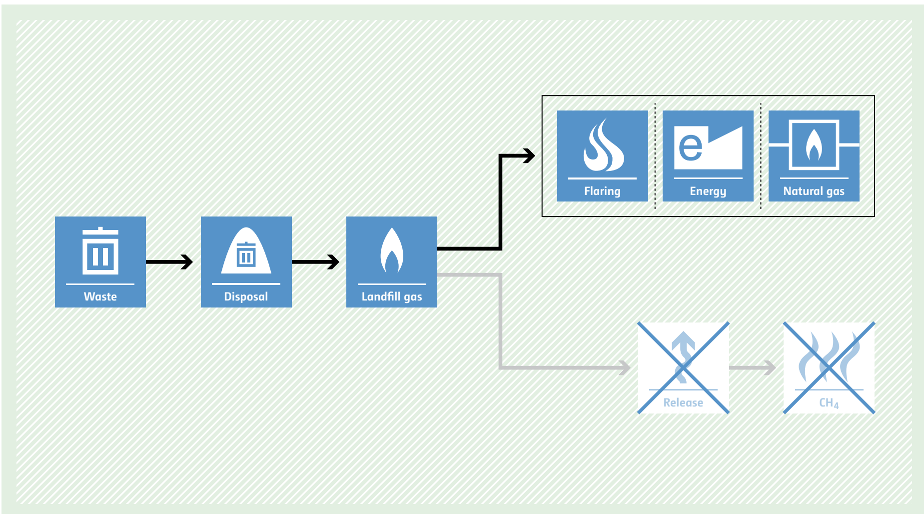
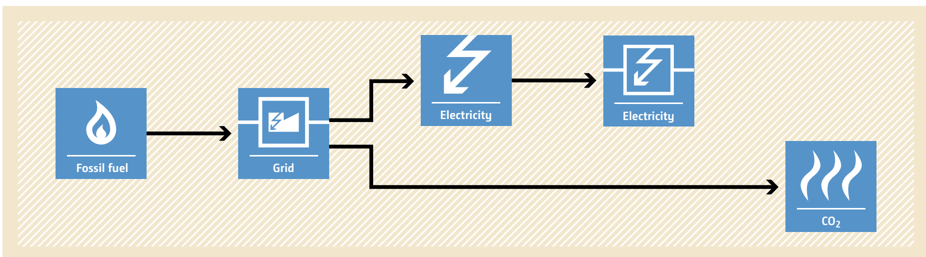
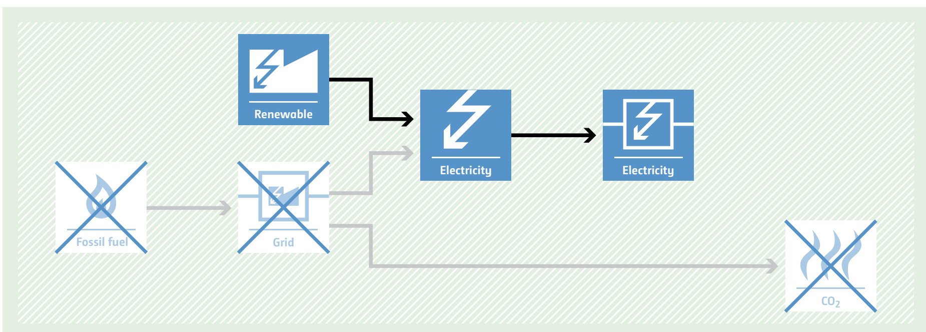
ACM0001 Flaring or use of landfill gas

Women and children

<table>
<tr><td>Typical project(s)</td><td>Capture of landfill gas (LFG) and its flaring and/or use to produce energy and/or use to supply consumers through natural gas distribution network or trucks.</td></tr>
<tr><td>Type of GHG emissions mitigation action</td><td>• GHG destruction.
Destruction of methane emissions and displacement of a more-GHG-intensive service.</td></tr>
<tr><td>Important conditions under which the methodology is applicable</td><td>• Captured landfill gas is flared, and/or;
• Captured landfill gas is used to produce energy, and or;
• Captured gas is used to supply consumers through natural gas distribution network, trucks or the dedicated pipeline.</td></tr>
<tr><td>Important parameters</td><td>Monitored:
• Amount of landfill gas captured;
• Methane fraction in the landfill gas;
• If applicable: electricity generation using landfill gas.</td></tr>
<tr><td>BASELINE SCENARIO
LFG from the landfill site is released to the atmosphere.</td><td>
</td></tr>
<tr><td>PROJECT SCENARIO
LFG from the landfill site is captured and flared; and/or used to produce energy (e.g. electricity/ thermal energy); and/or used to supply consumers through natural gas distribution network, trucks or the dedicated pipeline.</td><td>
</td></tr>
</table>

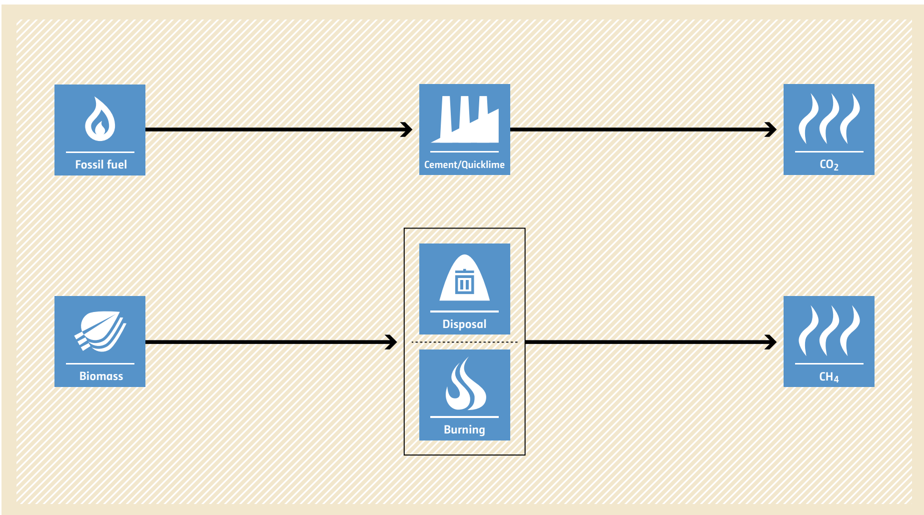
ACM0002 Grid-connected electricity generation from renewable sources

Typical project(s)	Retrofit, rehabilitation (or refurbishment), replacement or capacity addition of an existing power plant or construction and operation of a new power plant/unit that uses renewable energy sources and supplies electricity to the grid.
Type of GHG emissions mitigation action	• Renewable energy. Displacement of electricity that would be provided to the grid by more-GHG-intensive means.
Important conditions under which the methodology is applicable	• The project power plant is using one of the following sources: hydro, wind, geothermal, solar, wave or tidal power. Biomass-fired power plants are not applicable; • In the case of capacity additions, retrofits, rehabilitation or replacements, the existing power plant started commercial operation prior to the start of a minimum historical reference period of five years, and no capacity expansion or retrofit, rehabilitation or replacement of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project; • In case of hydro power: – The project has to be implemented in an existing reservoir, with no change in the volume of reservoir; – The project has to be implemented in an existing reservoir, where the volume of reservoir is increased and the power density is greater than 4 W/m^2; – The project results in new reservoirs and the power density is greater than 4 W/m^2; or – The project activity is an integrated hydro power project involving multiple reservoirs; • The following technologies are deemed automatically additional if their penetration rate of the technology are below 2 per cent of the total installed grid connected power generation capacity in the host country or the total installed capacity of the technology in the host country is less than or equal to 50 MW: – Solar photovoltaic technologies; – Solar thermal electricity generation including concentrating Solar Power (CSP); – Off-shore wind technologies; – Marine wave technologies; – Marine tidal technologies; – Ocean thermal technology.
Important parameters	At validation: • Grid emission factor (can also be monitored ex post). Monitored: • Electricity supplied to the grid by the project; • If applicable: methane emissions of the project.
BASELINE SCENARIO Electricity provided to the grid by more-GHG-intensive means.	
PROJECT SCENARIO Displacement of electricity provided to the grid by more-GHG-intensive means by installation of a new renewable power plant or the retrofit, replacement or capacity addition of an existing renewable power plant.	

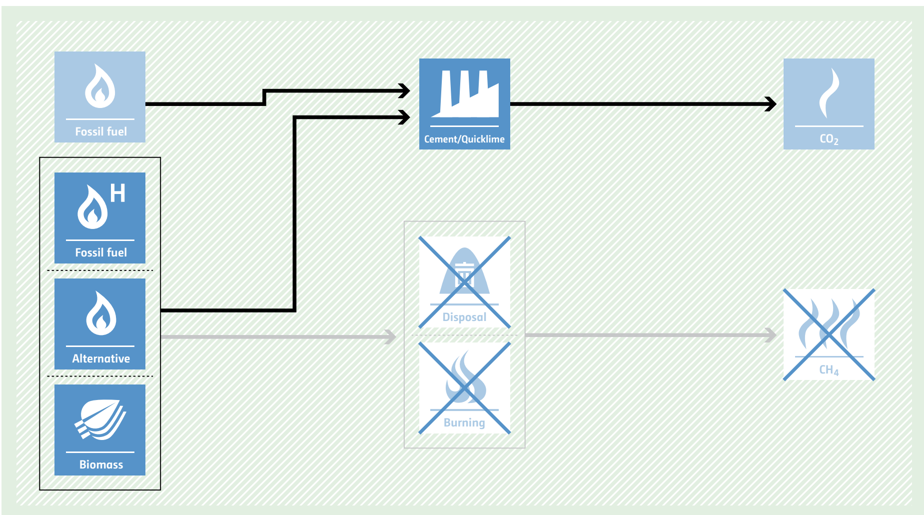
ACM0003 Partial substitution of fossil fuels in cement or quicklime manufacture

Typical project(s)	Partial replacement of fossil fuels in an existing clinker or quicklime production facility by less-carbon-intensive fossil fuel or alternative fuel (e.g. wastes or biomass residues).
Type of GHG emissions mitigation action	• Fuel switch; • Renewable energy. Reduction of GHG emissions by switching from carbon-intensive fuel to less-carbon-intensive or alternative fuel; GHG emission avoidance by preventing disposal or uncontrolled burning of biomass residues.
Important conditions under which the methodology is applicable	• No alternative fuels have been used in the project facility during the last three years prior to the start of the project; • The biomass to be combusted should not have been processed chemically; • For biomass from dedicated plantations, specific conditions apply.
Important parameters	Monitored: • Quantity and net calorific value of alternative fuel and/or less-carbon-intensive fossil fuel used in the project plant; • Quantity of clinker or quicklime produced.

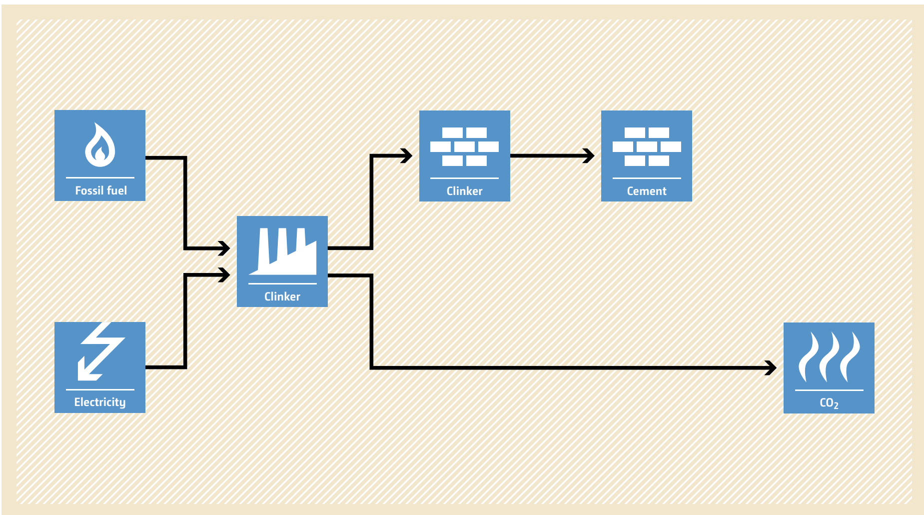
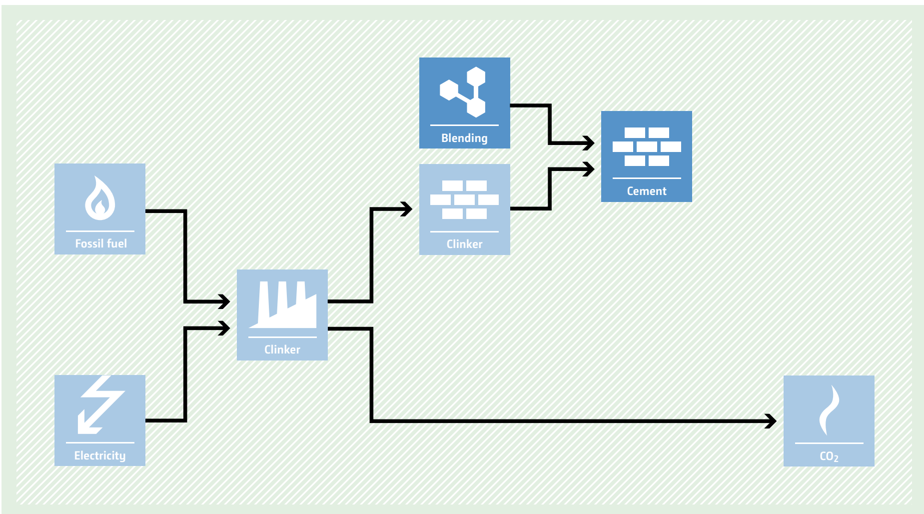
BASELINE SCENARIO
Clinker or quicklime is produced using more-carbon-intensive fuel and/or decay or uncontrolled burning of biomass leads to CH_4 emissions.



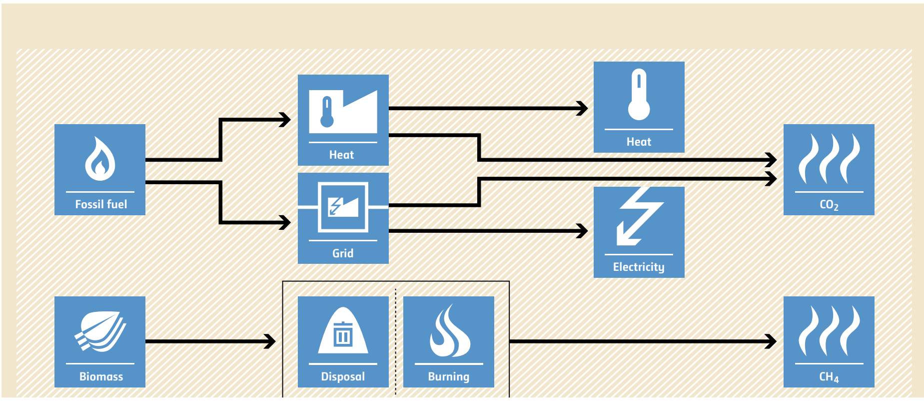
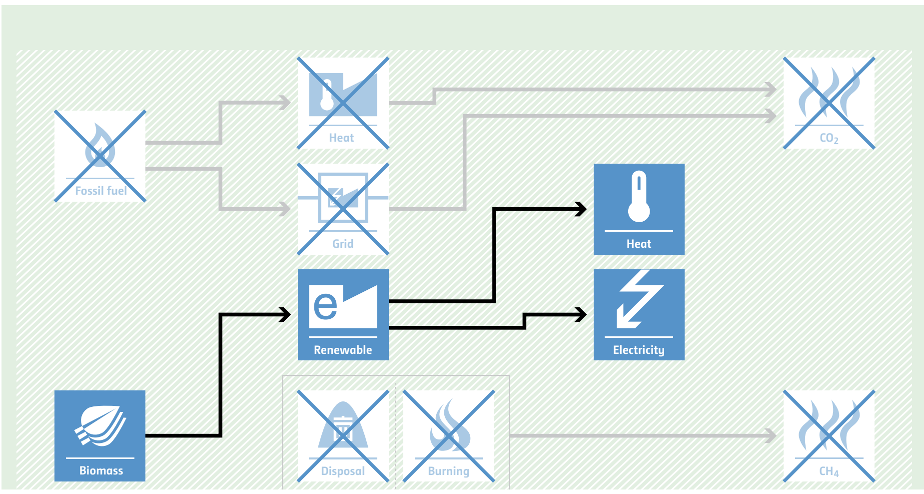
PROJECT SCENARIO
Clinker or quicklime is produced using less-carbon-intensive fuel and/or alternative fuel and/or biomass is combusted.



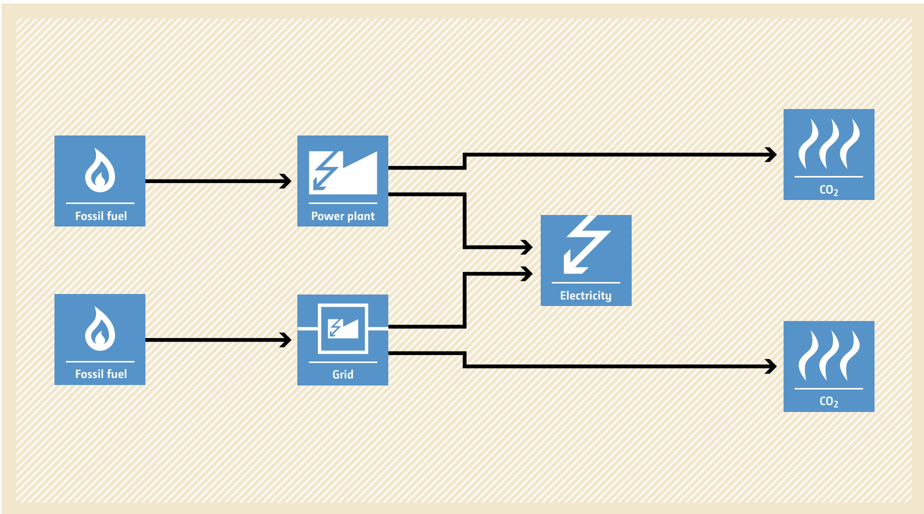
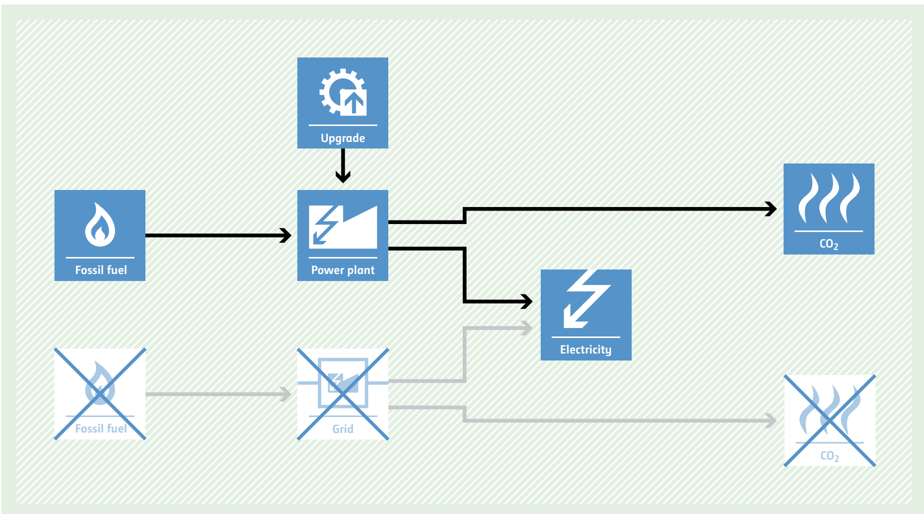
ACM0005 Increasing the blend in cement production

Typical project(s)	Use of blending material (e.g. fly ash, gypsum, slag) to decrease the share of clinker in cement.
Type of GHG emissions mitigation action	• Feedstock switch. CO_2 emissions from clinker production are avoided due to less use of clinker.
Important conditions under which the methodology is applicable	• Applicable to domestically sold blended cement; • Not applicable if blending of cement outside the cement production plant is common in the host country; • Not applicable for grinding only plants.
Important parameters	At validation: • Clinker ratio at the project plant, clinker ratio at all other plants in the region and in the five highest blended cement brands in the region; • Electricity emission factor.
	Monitored: • Cement and clinker production; • Raw materials, electricity demand and fuel use in the production of clinker; • Clinker and additives use in the production of cement.
BASELINE SCENARIO Available blending material is not used. Cement is produced with high clinker content, leading to high CO_2 emissions.	
PROJECT SCENARIO Available blending material is used in cement to partially replace clinker. Thereby CO_2 emissions from clinker production are avoided.	

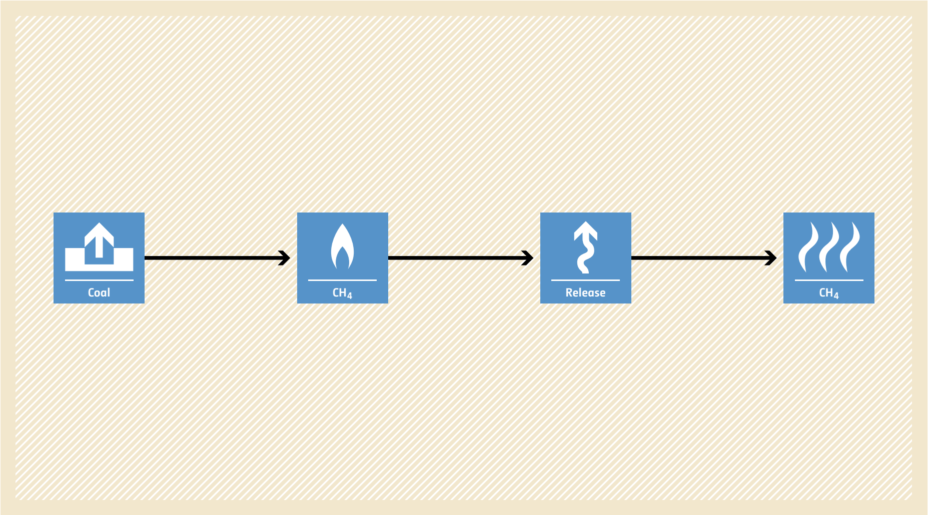
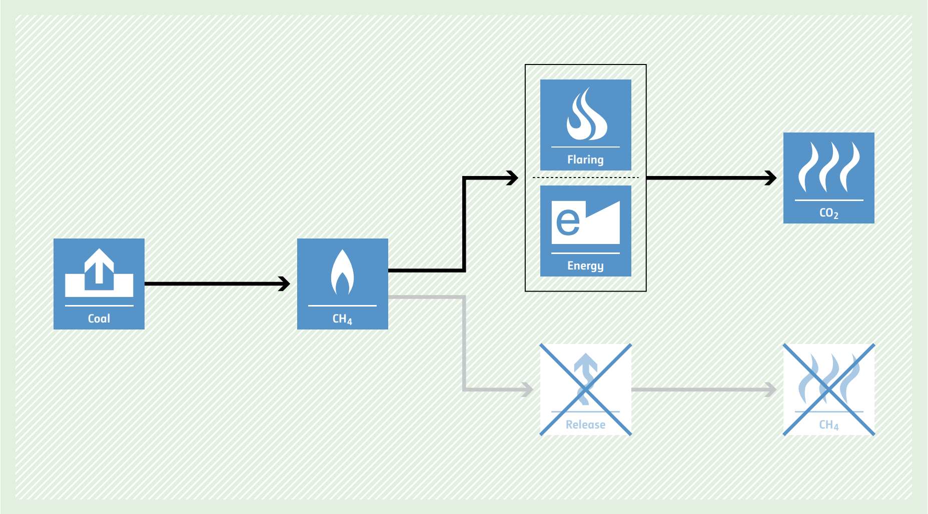
ACM0006 Consolidated methodology for electricity and heat generation from biomass

Typical project(s)	Generation of power and heat in thermal power plants, including cogeneration plants using biomass. Typical activities are new plant, capacity expansion, energy efficiency improvements or fuel switch projects.
Type of GHG emissions mitigation action	• Renewable energy; • Energy efficiency; • Fuel switch; • GHG emission avoidance. Displacement of more-GHG-intensive electricity generation in grid or heat and electricity generation on-site. Avoidance of methane emissions from anaerobic decay of biomass residues.
Important conditions under which the methodology is applicable	• Only power and heat or cogeneration plants are applicable; • Only biomass residues, biogas and biomass from dedicated plantations are eligible; • Fossil fuels may be co-fired in the project plant. The amount of fossil fuels co-fired shall not exceed 80% of the total fuel fired on an energy basis; • Planted biomass is eligible if specific conditions elaborated in “Project and leakage emissions from biomass” are met.
Important parameters	At validation: • Grid emission factor (can also be monitored ex post).
	Monitored: • Quantity and moisture content of the biomass used in the project activity; • Electricity and heat generated in the project activity; • Electricity and, if applicable, fossil fuel consumption of the project activity.
BASELINE SCENARIO Electricity and heat would be produced by more-carbon-intensive technologies based on fossil fuel or less-efficient biomass power and heat plants. Biomass could partly decay under anaerobic conditions, bringing about methane emissions.	
PROJECT SCENARIO Use of biomass for power and heat generation instead of fossil fuel or increase of the efficiency of biomass-fuelled power and heat plants. Biomass is used as fuel and decay of biomass is avoided.	

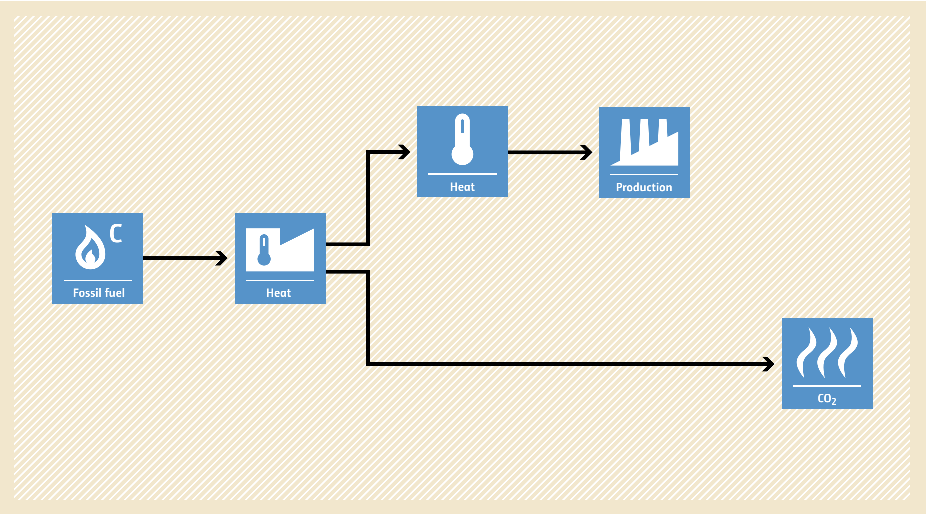
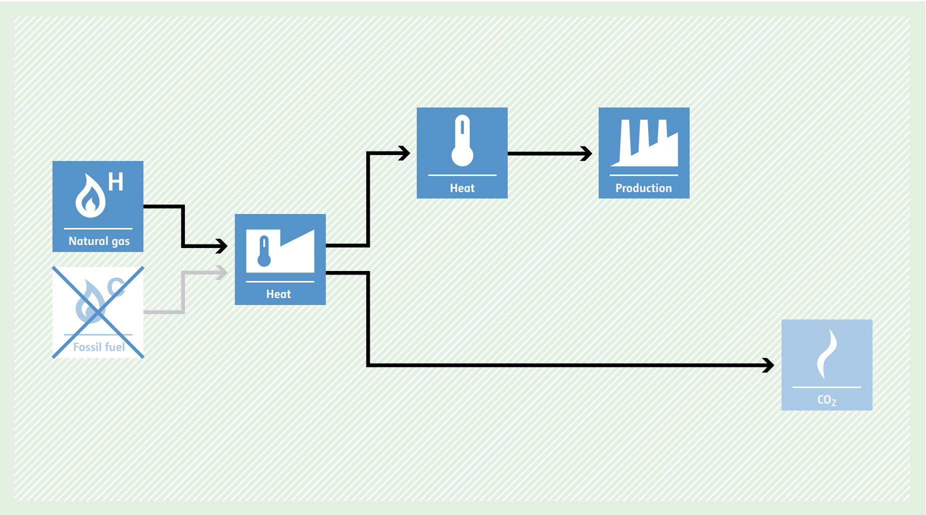
ACM0007 Conversion from single cycle to combined cycle power generation

Typical project(s)	Conversion from an open-cycle gas power plant to a combined-cycle gas power plant.
Type of GHG emissions mitigation action	• Energy efficiency. Fuel savings through energy efficiency improvement.
Important conditions under which the methodology is applicable	• The project does not increase the lifetime of the existing gas turbine or engine during the crediting period; • Waste heat generated on the project site is not utilizable for any other purpose.
Important parameters	At validation: • Electricity generation of the existing open-cycle gas power plant (can also be monitored ex post); • Fuel consumption of the existing open-cycle gas power plant.
	Monitored: • Electricity generation of the combined-cycle gas power plant; • Fuel consumption of the combined-cycle gas power plant; • Grid emission factor.
BASELINE SCENARIO Electricity is generated by an open-cycle gas power plant.	
PROJECT SCENARIO The open-cycle gas power plant is converted to a combined-cycle one for more-efficient power generation.	

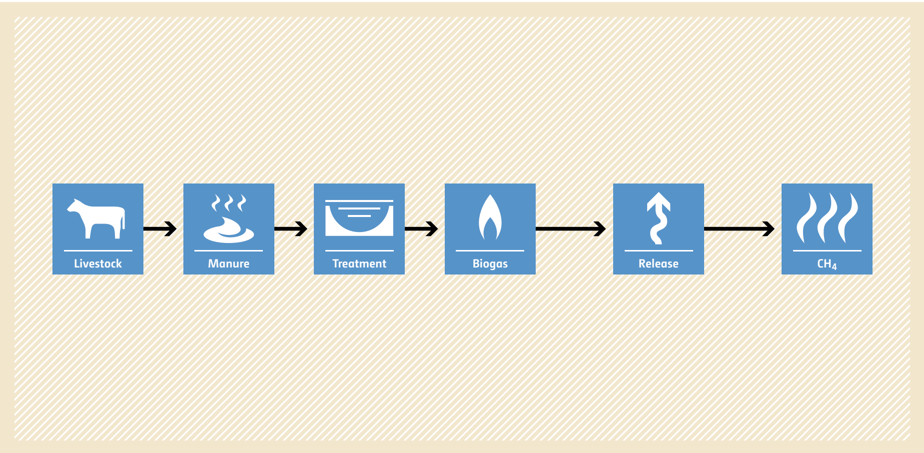
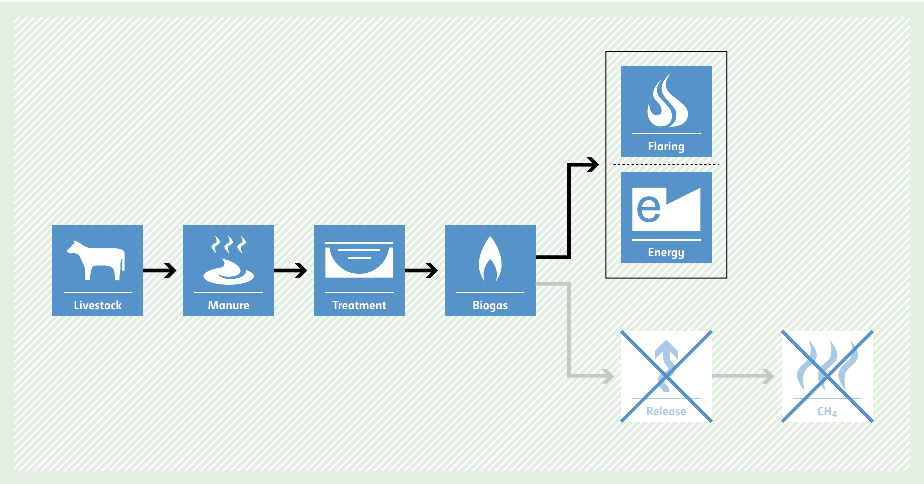
ACM0008 Abatement of methane from coal mines

Typical project(s)	Capture and destruction and/or use of coal bed methane, coal mine methane or ventilation air methane from new, existing or abandoned coal mine(s).
Type of GHG emissions mitigation action	• GHG destruction. Destruction of methane emissions and displacement of more-GHG-intensive service.
Important conditions under which the methodology is applicable	• All methane captured by the project should either be used or destroyed; • Not applicable to capture/use of virgin coal bed methane, e.g. methane extracted from coal seams for which there is no valid coal mining concession; • Not applicable to methane extraction from abandoned mines that are flooded due to regulation.
Important parameters	Monitored: • Methane destroyed or used; • Concentration of methane in extracted gas; • If applicable: electricity generated by project;
BASELINE SCENARIO Methane from coal mining activities is vented into the atmosphere.	
PROJECT SCENARIO Methane from coal mining activities is captured and destroyed using oxidation or used for power or heat generation.	

ACM0009 Fuel switching from coal or petroleum fuel to natural gas

Typical project(s)	Switching from coal or petroleum fuel to natural gas in the generation of heat for industrial processes.
Type of GHG emissions mitigation action	• Fuel switch. Reduction of GHG emissions by switching from carbon-intensive to a less-carbon-intensive fuel in the generation of heat.
Important conditions under which the methodology is applicable	• No natural gas has previously been used; • The fuel is neither used for cogeneration of electricity nor as an oxidant but generates heat for district heating or an industrial output other than heat; • The project does not increase the capacity of thermal output or lifetime of the element processes or does not result in integrated process change.
Important parameters	At validation: • Quantity, net calorific value and CO_2 emission factor of baseline fuels; • Energy efficiency of the element process(es) fired with coal or petroleum fuel.
	Monitored: • Quantity, net calorific value and CO_2 emission factor of natural gas combusted in the element process(es) in the project; • Energy efficiency of the element process(es) if fired with natural gas.
BASELINE SCENARIO Coal or petroleum fuel is used to generate heat.	
PROJECT SCENARIO Natural gas replaces coal or petroleum fuel.	

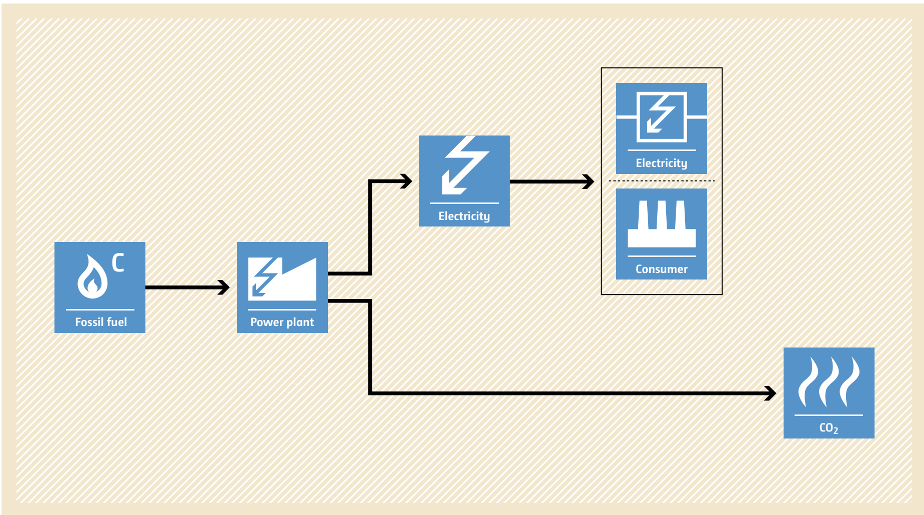
ACM0010 GHG emission reductions from manure management systems

Typical project(s)	Manure management on livestock farms (cattle, buffalo, swine, sheep, goats, and/or poultry) where the existing anaerobic manure treatment system is replaced by, or a new system is constructed as, one or a combination of more than one animal waste management systems that result in less GHG emissions.
Type of GHG emissions mitigation action	• GHG destruction. Destruction of methane emissions and displacement of a more-GHG-intensive service.
Important conditions under which the methodology is applicable	• Farms where livestock populations are managed under confined conditions; • Farms where manure is not discharged into natural water resources (e.g. rivers or estuaries); • In case of anaerobic lagoon treatment systems, the depth of the lagoons used for manure management under the baseline scenario should be at least 1 m; • The annual average ambient temperature at the treatment site is higher than 5°C; • In the baseline case, the minimum retention time of manure waste in the anaerobic treatment system is greater than one month.
Important parameters	Monitored: • Number of heads of each population and the average animal weight in each population; • If dietary intake method is used, daily average gross energy intake has to be monitored; • Electricity and fossil fuel consumption.
BASELINE SCENARIO Existing manure management system or system to be installed in the absence of the project activity results in release of methane into the atmosphere.	
PROJECT SCENARIO Capture of methane in the animal waste management systems results in less GHG emissions. In case of energetic use of methane, displacement of more-GHG-intensive energy generation.	

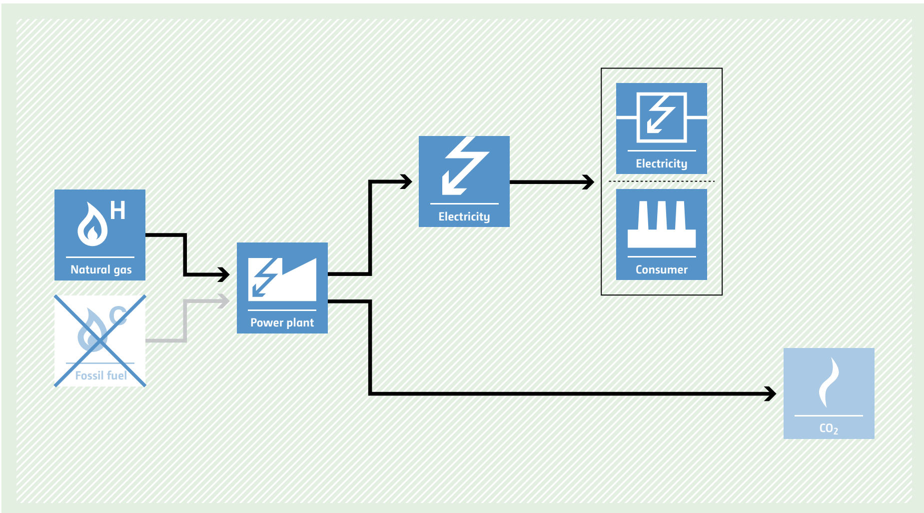
ACM0011 Fuel switching from coal and/or petroleum fuels to natural gas in existing power plants for electricity generation

Typical project(s)	Switch from coal or petroleum derived fuel to natural gas at an existing power plant.
Type of GHG emissions mitigation action	• Fuel switch. Switch from coal or petroleum fuel to natural gas.
Important conditions under which the methodology is applicable	• At least three years of operation history are available; • The fuel switch is from only coal and/or petroleum fuels to only natural gas; • Only power is generated, for either only the grid or only a captive consumer; • The project does not involve major retrofits/modifications of the power plant.
Important parameters	At validation: • Historical fuel consumption and power generation; • Electricity emission factor (can also be monitored ex post). Monitored: • Quantity, calorific value and emission factor of fuels consumed in the project; • Electricity supplied to the electric power grid or consuming facility.

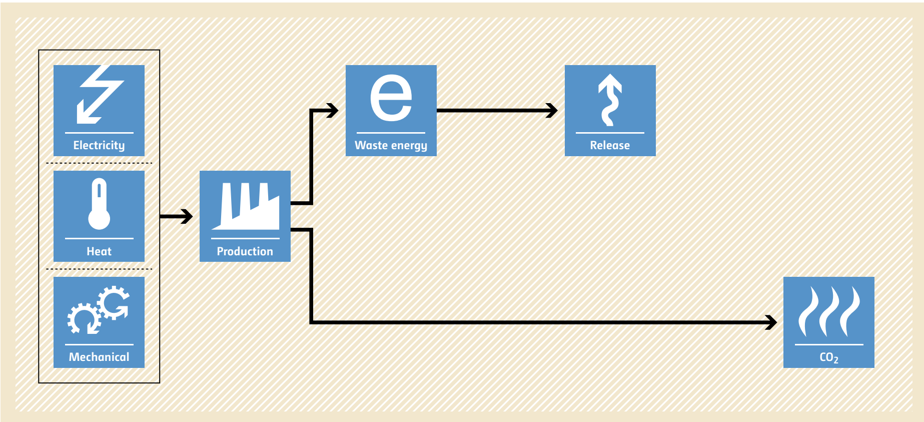
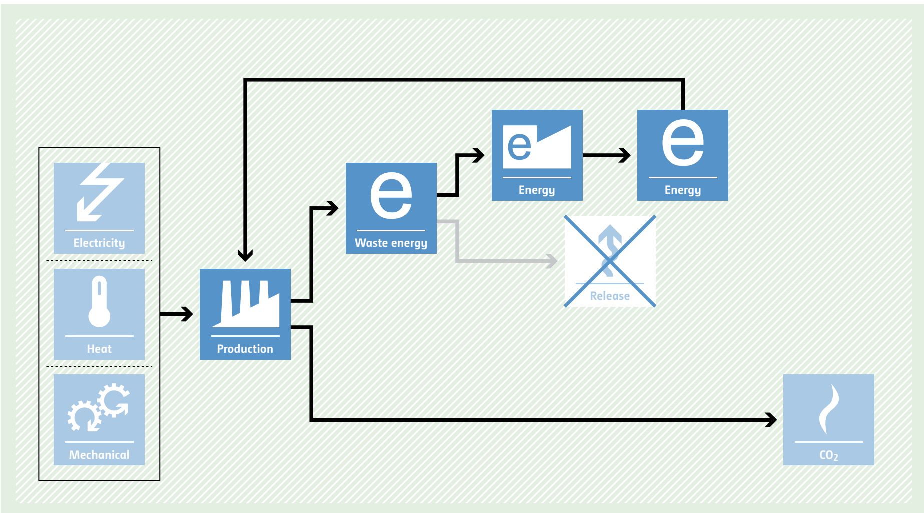
BASELINE SCENARIO
Coal and/or petroleum fuel is used to generate electricity.



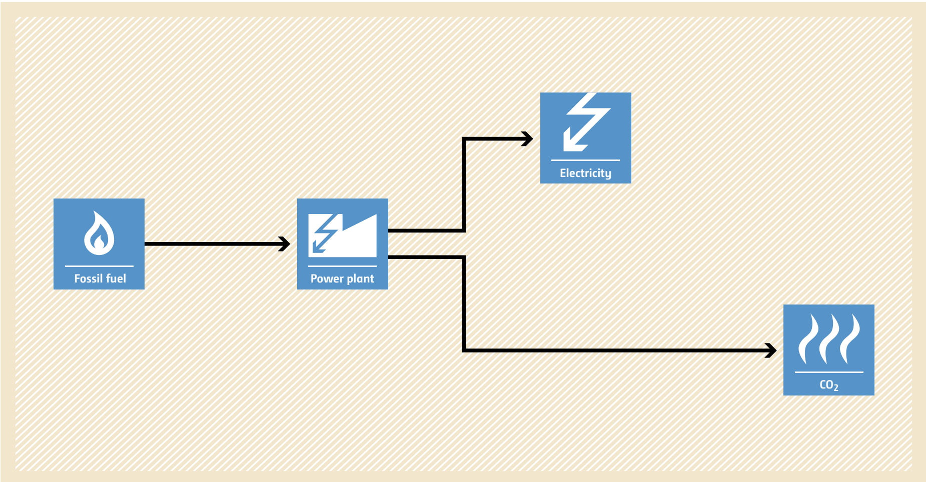
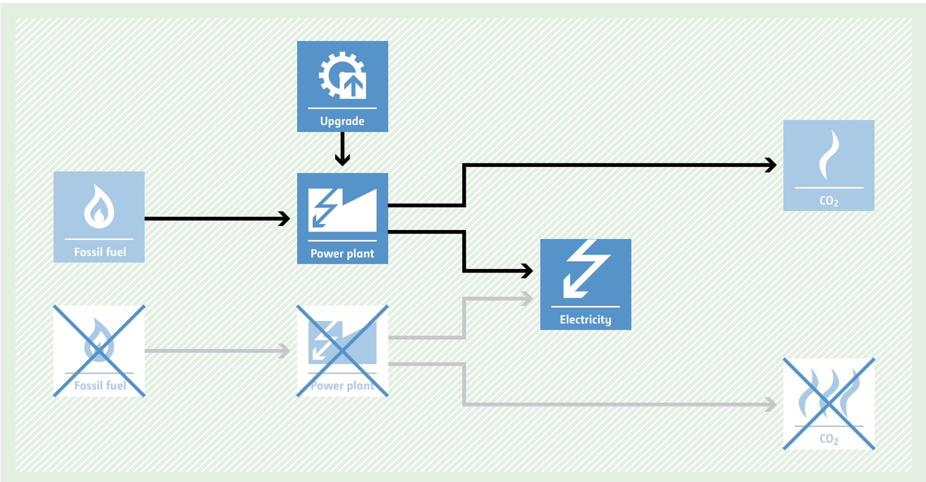
PROJECT SCENARIO
Natural gas is used to generate electricity.



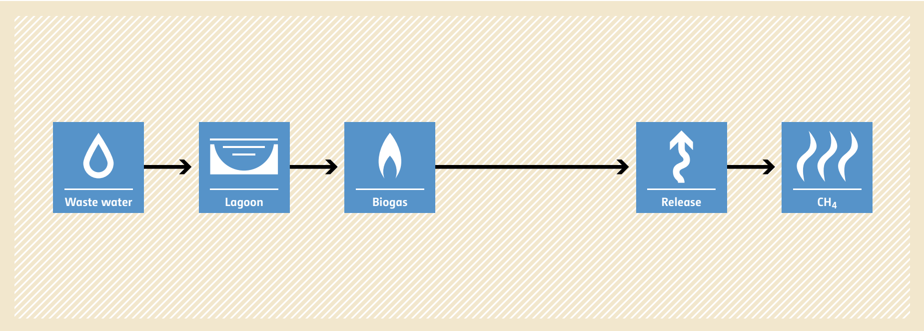
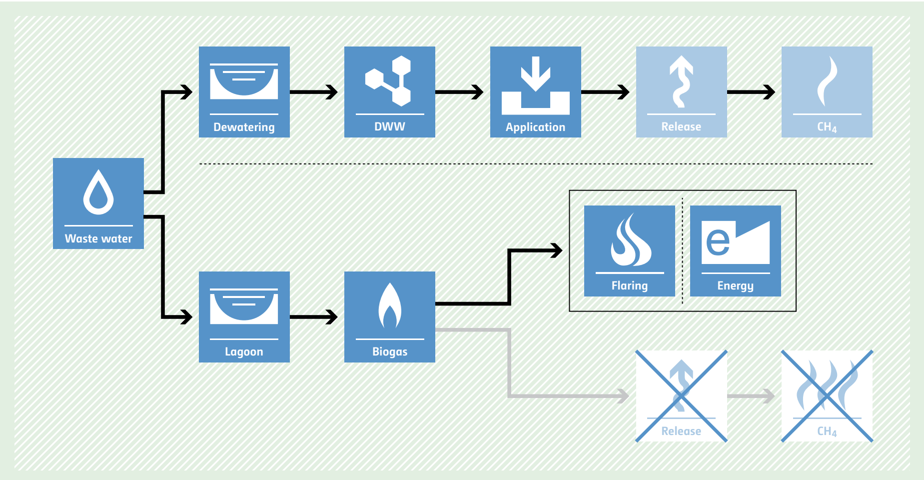
ACM0012 Waste energy recovery

Typical project(s)	Energy from waste heat, waste gas or waste pressure in an existing or new industrial facility is recovered and used for in-house consumption or for export, by installation of a new power and/or heat and/or mechanical energy generation equipment, or by installation of a more efficient electricity generation equipment than already existing, or by upgrade of existing equipment but with better efficiency of recovery.
Type of GHG emissions mitigation action	• Energy efficiency. Waste energy recovery in order to displace more-carbon-intensive energy/technology.
Important conditions under which the methodology is applicable	• In the absence of the project, the waste energy carrying medium would remain unutilized (e.g. flared or released to the atmosphere). In case of partial use of the waste energy carrying medium in the baseline situation, the project increases the share of used waste energy by means of enhance or improved energy recovery of the waste energy carrying medium; • For capacity expansion projects, the new capacity should be treated as new facility and therefore the applicable guidance for baseline scenario determination, capping of baseline emissions and demonstration of use of waste energy in absence of the CDM project, should be followed; • Project activities can generate electricity and/or mechanical energy beyond the maximum capacity of the pre-project equipment of existing recipient facilities.
Important parameters	Monitored: • Quantity of electricity/mechanical energy/heat supplied to the recipient plant(s); • Quantity and parameters of waste energy streams during project.
BASELINE SCENARIO Carbon-intensive sources will continue to supply heat/electricity/mechanical energy to the applications of the recipient facility and unrecovered energy from waste energy source will continue to be wasted.	
PROJECT SCENARIO Heat/electricity/mechanical energy are generated by recovery of energy from a waste energy source and are supplied to the grid and/or applications in the recipient facility.	

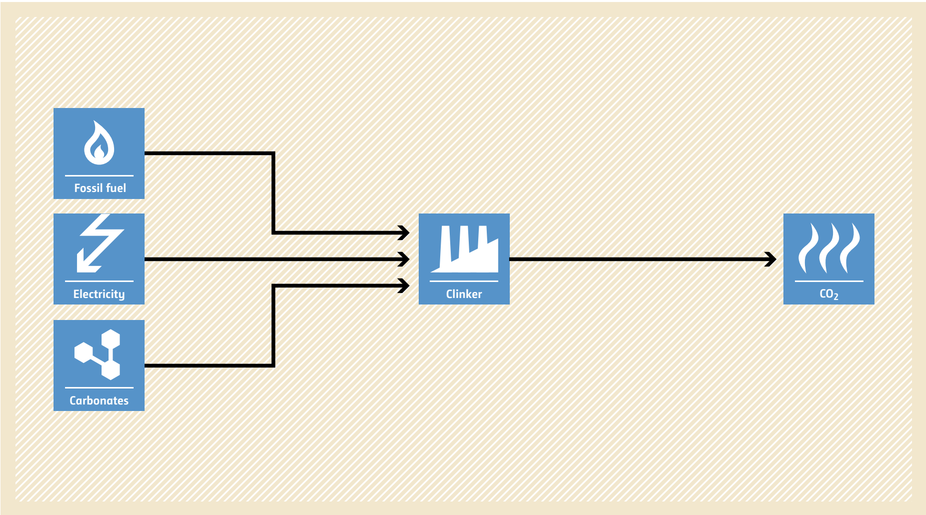
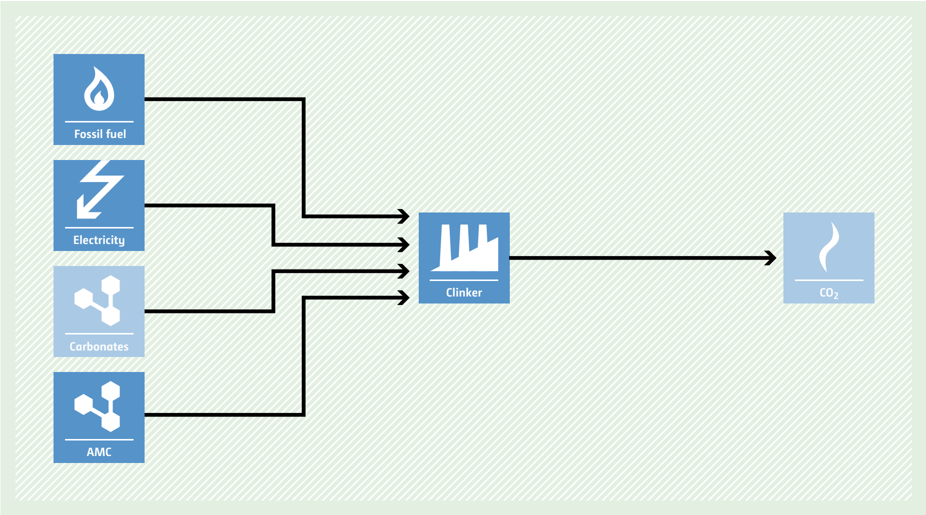
ACM0013 Construction and operation of new grid connected fossil fuel fired power plants using a less GHG intensive technology

Typical project(s)	Construction and operation of a new fossil fuel fired power plant that supplies electricity to the grid using more-efficient power generation technology than would otherwise be used with the given fossil fuel (e.g. construction of a supercritical coal fired power plant).
Type of GHG emissions mitigation action	• Energy efficiency. Construction of a highly efficient new grid-connected fossil-fuel-fired power plant.
Important conditions under which the methodology is applicable	• Only supply of power to the grid is applicable (no cogeneration); • The identified baseline fuel category is used as the main fuel category in more than 50% of the total rated capacity of power plants which were commissioned for commercial operation in the most recent five calendar/fiscal years prior to the publication of the PDD for global stakeholder consultation, within the electric grid to which the project plant will be connected; • At least five new power plants can be identified as similar to the project plant (in the baseline identification procedure).
Important parameters	At validation: • Energy efficiency of the power generation technology that has been identified as the most likely baseline scenario. Monitored: • Quantity, calorific value and emission factor of fuels consumed in the project activity; • Electricity supplied to the electric power grid.
BASELINE SCENARIO Electricity is generated by a less-efficient new grid-connected power plant using fossil fuel.	
PROJECT SCENARIO Electricity is generated by a more-efficient new grid-connected power plant using less fossil fuel.	

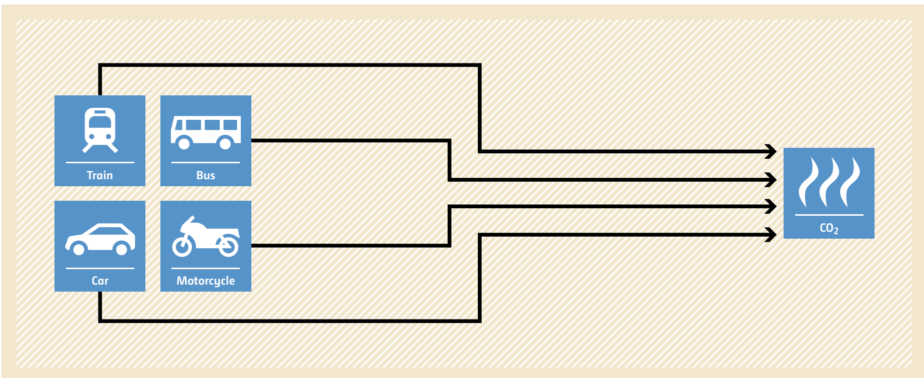
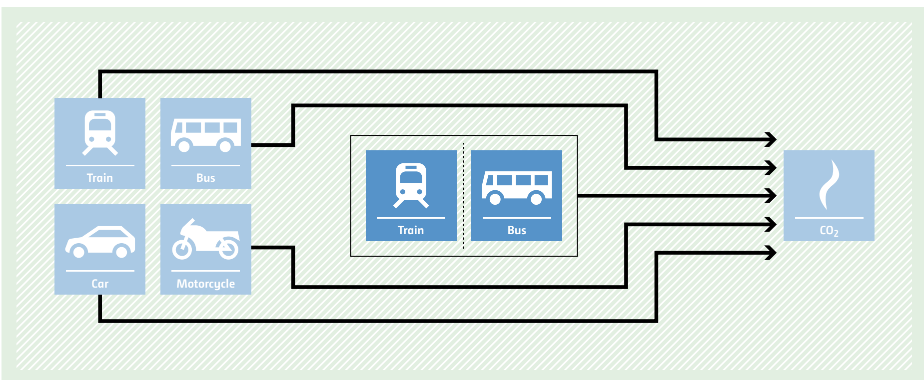
ACM0014 Treatment of wastewater

Typical project(s)	• Treatment of wastewater in a new anaerobic digester, capture and flaring or utilizing of the generated biogas for electricity or heat generation; • Dewatering of wastewater and application to land; • Treatment of wastewater in the same treatment plant as in the baseline situation but treatment of the sludge from primary and/or secondary settler either in a new anaerobic digester or treatment of sludge under clearly aerobic conditions.
Type of GHG emissions mitigation action	• GHG destruction. Destruction of methane emissions and displacement of more-GHG-intensive service.
Important conditions under which the methodology is applicable	• The average depth of the open lagoons or sludge pits in the baseline scenario is at least 1 m; • The residence time of the organic matter in the open lagoon or sludge pit system should be at least 30 days; • Inclusion of solid materials in the project activity is only applicable where: – Such solid materials are generated by the industrial facility producing the wastewater; and – The solid materials would be generated both in the project and in the baseline scenario; • The sludge produced during the implementation of the project activity is not stored onsite before land application to avoid any possible methane emissions from anaerobic degradation.
Important parameters	Monitored: • Quantity and chemical oxygen demand (COD) of wastewater or sludge that is treated in the project; • Quantity of biogas collected and concentration of methane in the biogas; • Net quantity of electricity or heat generated in the project; • Quantity of dewatered sludge/wastewater applied to land.
BASELINE SCENARIO Existing wastewater treatment system results in release of methane into the atmosphere.	
	

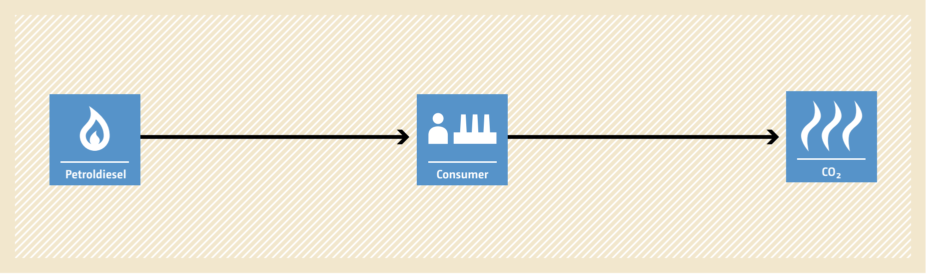
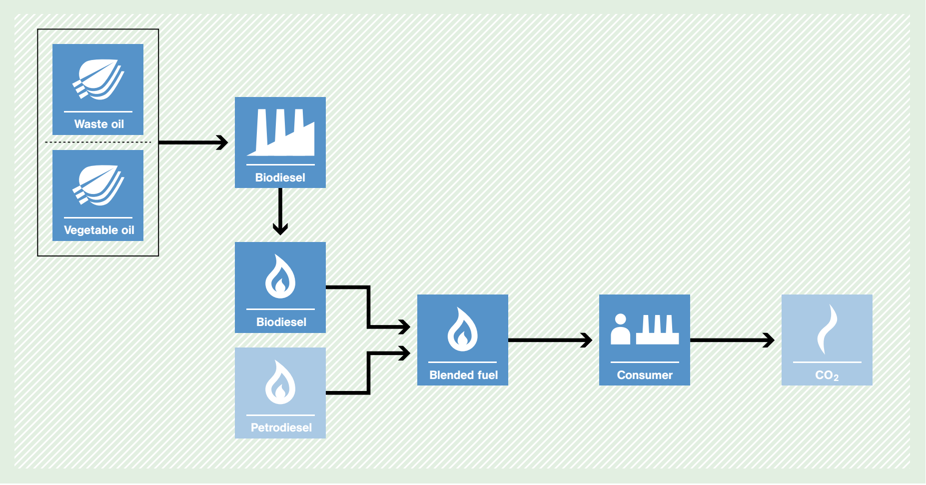
ACM0015 Emission reductions from raw material switch in clinker production

Typical project(s)	Partial or full switch to alternative raw materials that do not contain carbonates (AMC) in the production of clinker in cement kilns in existing and Greenfield cement plants, with or without additional energy efficiency measures.
Type of GHG emissions mitigation action	• Feedstock switch; • Energy efficiency. Avoidance of process CO_2 emissions by switching to carbonate free feedstock in the production of clinker. Additional energy efficiency measures may be implemented.
Important conditions under which the methodology is applicable	• Installed capacity of clinker production, lifetime of equipment, quality and types of clinker are not changed; • No AMC have previously been used in the clinker production at the plant; • At least 1.5 times the quantity of AMC required for meeting the aggregate demand of the proposed project activity and all existing users consuming the same AMC in the project area is available.
Important parameters	At validation: • Historical raw material use and clinker production and quality for existing plants. Monitored: • Quantity of alternative materials consumed in the project; • Quantity and quality of clinker produced in the project; • Specific Kiln Calorific Consumption; • Electricity consumption.
BASELINE SCENARIO Raw materials that contain calcium and/or magnesium carbonates (e.g. limestone) are used to produce clinker.	
PROJECT SCENARIO Alternative raw materials that do not contain carbonates (AMC) are used to produce clinker.	

ACM0016 Mass Rapid Transit Projects

Typical project(s)	Establishment and operation of rail-based or bus-based mass rapid transit systems in urban or suburban regions for passenger transport by replacing a traditional urban bus-driven public transport system.
Type of GHG emissions mitigation action	• Energy efficiency. Displacement of more-GHG and, if gaseous fuels are used, CH_4-intensive transport modes (existing fleet of buses operating under mixed traffic conditions) by less-GHG-intensive ones (newly developed rail-based systems or segregated bus lanes).
Important conditions under which the methodology is applicable	• The project either installs new railways or segregated bus lanes in order to replace existing bus routes (e.g. by scrapping buses, closing or rescheduling bus routes). For bus rapid transit systems with feeder plus trunk routes, methodology AM0031 is recommended; • The project activity involves urban or suburban transport projects. It is not applicable for inter-urban transport; • The methodology is not applicable for operational improvements (e.g. new or larger buses) of an already existing and operating bus lane or rail-based system.
Important parameters	At validation: • Baseline distance and transport mode, which are obtained through a comprehensive survey involving the users of the project transport system; • Occupancy rates and travelled distances of different transport modes; • If expected emissions per passenger kilometer is less than or equal to 50 gCO_2/pkm (for road based MRTS) and 0.1 kWh/pkm (for rail based MRTS), the project is considered automatically additional.
	Monitored: • The number of passengers transported in the project; • Specific fuel consumption, occupancy rates and travelled distances of different transport modes as well as the speed of vehicles on affected roads.
BASELINE SCENARIO Passengers are transported using a diverse transport system involving buses, trains, cars, non-motorized transport modes, etc. operating under mixed traffic conditions.	
PROJECT SCENARIO Passengers are transported using newly developed rail-based systems or segregated bus lanes that partially displace the existing bus-driven transport system operated under mixed traffic conditions.	

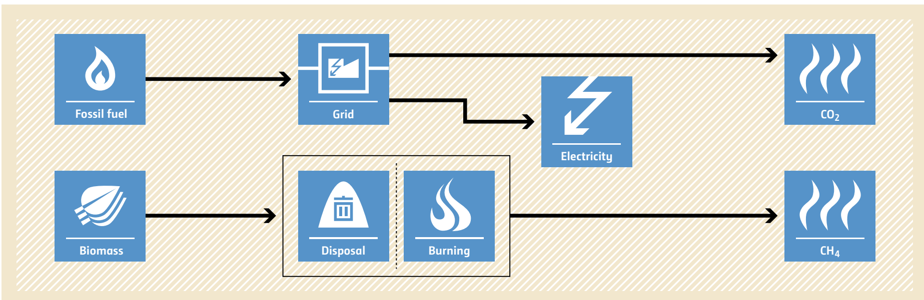
ACM0017 Production of biodiesel for use as fuel

Typical project(s)	Construction and operation of a biofuel production plant for production of blended biofuel that is used as fuel in existing stationary installations (e.g. captive generators) and/or in vehicles. Biofuel is produced from waste oil/fat seeds or crops that are cultivated on dedicated plantations.
Type of GHG emissions mitigation action	• Renewable energy. Displacement of more-GHG-intensive fossil fuel for combustion in vehicles and/or stationary installations.
Important conditions under which the methodology is applicable	• The alcohol used for esterification (production of biodiesel) is methanol from fossil fuel origin; • No modifications in the consumer stationary installations or in the vehicles engines are necessary to consume/combust the (blended) biofuel; • Planted biomass is eligible if specific conditions elaborated in "Project and leakage emissions from biomass" are met; • Consumers and producers of the (blended) biofuel are bound by a contract that allows the producer to monitor consumption/sale/blending of (blended) biofuel and that states that the consumer shall not claim CERs resulting from its consumption.
Important parameters	Monitored: • Quantity of biofuel from waste oil/fat, biomass residues or feedstock from dedicated plantations consumed by host country consumers to substitute fossil fuel; • Project emissions from transport of oilseeds, biomass residues, vegetable oil, waste oil/fats, biofuel if distances of more than 50 km are covered; fossil fuel (including methanol) and electricity consumption; • If applicable, parameters to monitor project emissions (CO_2, CH_4, N_2O) associated with the cultivation of seeds or crops.
BASELINE SCENARIO Consumption of fossil fuel.	
PROJECT SCENARIO Production of blended biofuel and consumption in existing stationary installations (e.g. captive generators) and/or in vehicles.	

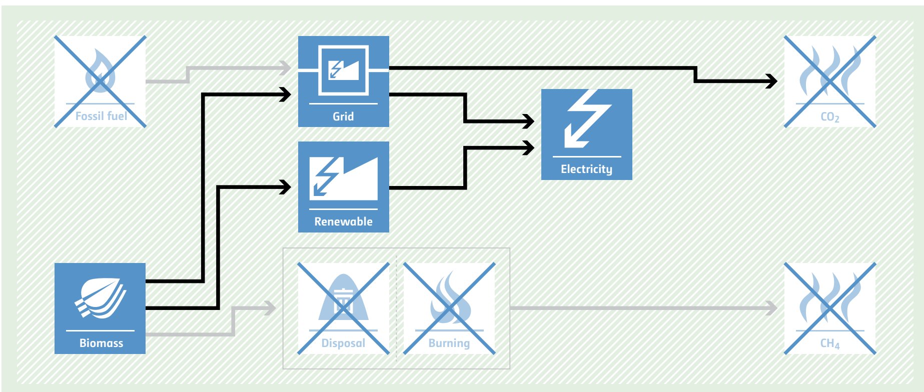
ACM0018 Electricity generation from biomass residues in power-only plants

Typical project(s)	Generation of power using biomass as fuel, in new biomass based power plants at sites where currently no power generation occurs (Greenfield), replacement or installation of operation units next to existing power plants (capacity expansion projects), energy efficiency improvement projects or replacement of fossil fuel by biomass in existing power plants (fuel switch projects). The biomass based power generation may be combined with solar thermal power generation.
Type of GHG emissions mitigation action	• Renewable energy; • Energy efficiency; • Fuel switch. Displacement of more GHG-intensive electricity generation in the grid or on-site. Avoidance of methane emissions from anaerobic decay of biomass residues. Displacement of more-GHG-intensive fossil fuel for combustion in stationary installations.
Important conditions under which the methodology is applicable	• If biomass from a production process is used, the implementation of the project shall not result in an increase of the processing capacity of raw input; • The methodology is applicable to power-only plants; • Planted biomass is eligible if specific conditions elaborated in “Project and leakage emissions from biomass” are met; • Fossil fuels may be co-fired in the project plant. However, the amount of fossil fuels co-fired shall not exceed 80% of the total fuel fired on an energy basis; • In case of existing facilities, three years of historical data is required for the calculation of emissions reductions; • Projects that chemically process the biomass prior to combustion (e.g. by means of esterification of waste oils, fermentation and gasification, etc.) are not eligible under this methodology. The biomass can however be processed physically such as by means of drying, pelletization, shredding and briquetting.
Important parameters	At validation: • If applicable: grid emission factor (can also be monitored ex post). Monitored: • Electricity generated in the project; • Quantity and moisture content of the biomass used in the project and electricity and fossil fuel consumption of the project.

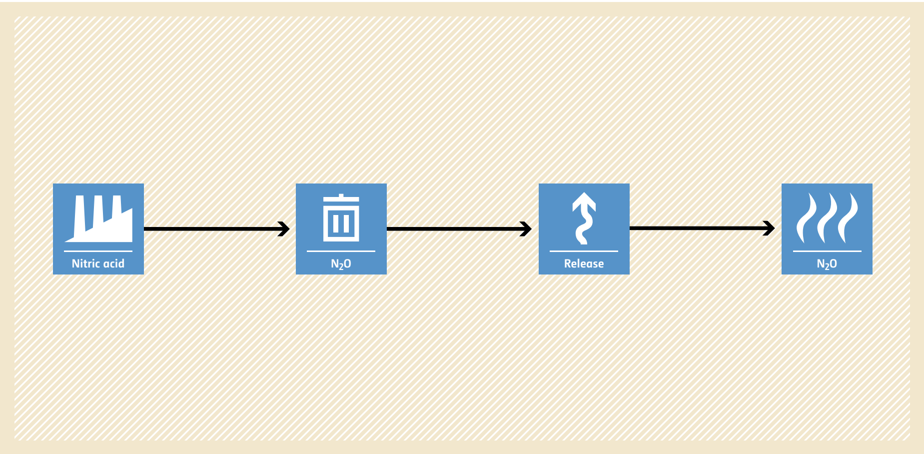
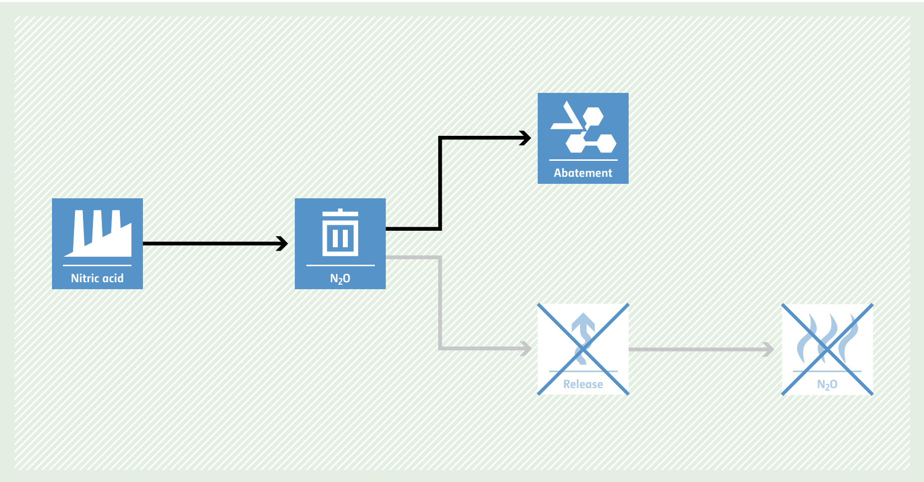
BASELINE SCENARIO
Electricity would be produced by more-carbon-intensive technologies based on fossil fuel or less efficient power plants. Biomass could partially decay under anaerobic conditions, resulting in methane emissions.



PROJECT SCENARIO
Use of biomass residues replaces fossil fuel use. Decay of biomass residues used as fuel is avoided.



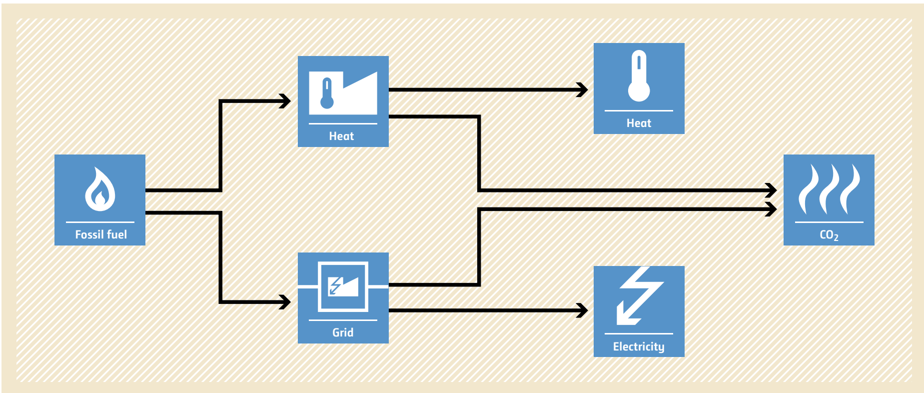
ACM0019 N_2O abatement from nitric acid production

Typical project(s)	Project activities that introduce N_2O abatement measures in nitric acid plants.
Type of GHG emissions mitigation action	• Destruction of GHG. Destruction of N_2O emissions through abatement measures.
Important conditions under which the methodology is applicable	• Continuous real-time measurements of the N_2O concentration and the total gas volume flow can be carried out in the tail gas stream after the abatement of N_2O emissions throughout the crediting period of the project activity; • No law or regulation is in place mandating the complete or partial destruction of N_2O from nitric acid plant.
Important parameters	At validation: • Nitric acid produced.
	Monitored: • Mass flow of N_2O in the gaseous stream of the tail gas; • Nitric acid produced; • Fraction of time during which the by-pass valve on the line feeding the tertiary N_2O abatement facility was open.
BASELINE SCENARIO Venting of N_2O generated during the production of nitric acid to the atmosphere.	
PROJECT SCENARIO Implementation of different abatement measures to destroy N_2O emissions (i.e. installation of secondary or tertiary abatement systems).	

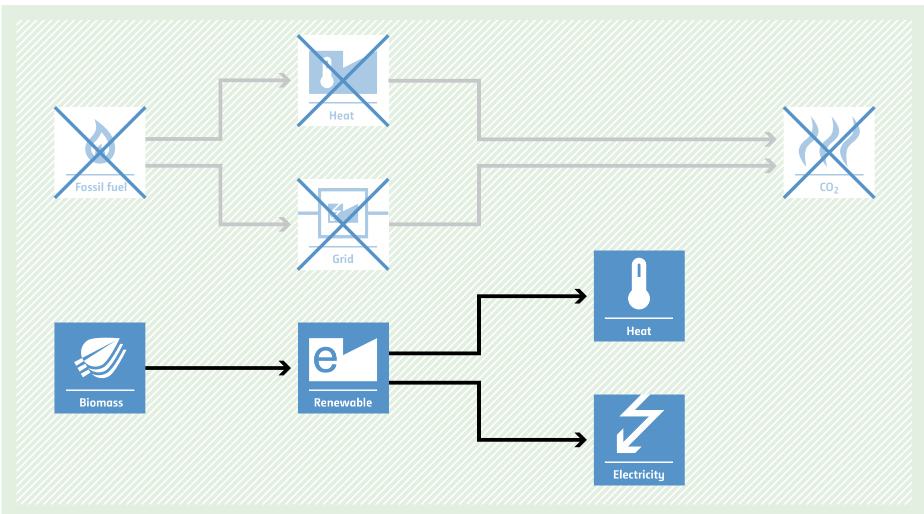
ACM0020 Co-firing of biomass residues for heat generation and/or electricity generation in grid connected power plants

Typical project(s)	Operation of a single piece of biomass-residue co-fired heat generation equipment. The heat output of the heat generators may be used onsite to produce electric power in power-only plants, or cogenerate electric power in cogeneration plants. Typical activities are partial replacement of fossil fuels by biomass residues in existing or new heat generation equipment.
Type of GHG emissions mitigation action	• Renewable Energy. Displacement of more-GHG-intensive electricity generation in grid or heat and electricity generation on-site.
Important conditions under which the methodology is applicable	• If biomass from a production process is used, the implementation of the project shall not result in an increase of the processing capacity of raw input; • Only biomass residues, not biomass in general, are eligible; • The amount of biomass residues co-fired shall not exceed 50% of the total fuel fired on an energy basis; • No biomass is co-fired in the identified baseline scenario and the same type of fossil fuel is fired in the identified baseline scenario as in the project activity.
Important parameters	At validation: • If applicable: grid emission factor (can also be monitored ex post). Monitored: • Quantity and moisture content of the biomass residues used in the project; • Electricity and/or heat generated in the project activity; • Electricity and fossil fuel consumption of the project activity.

BASELINE SCENARIO
Electricity or heat would be produced by more-carbon-intensive technologies based on fossil fuel.



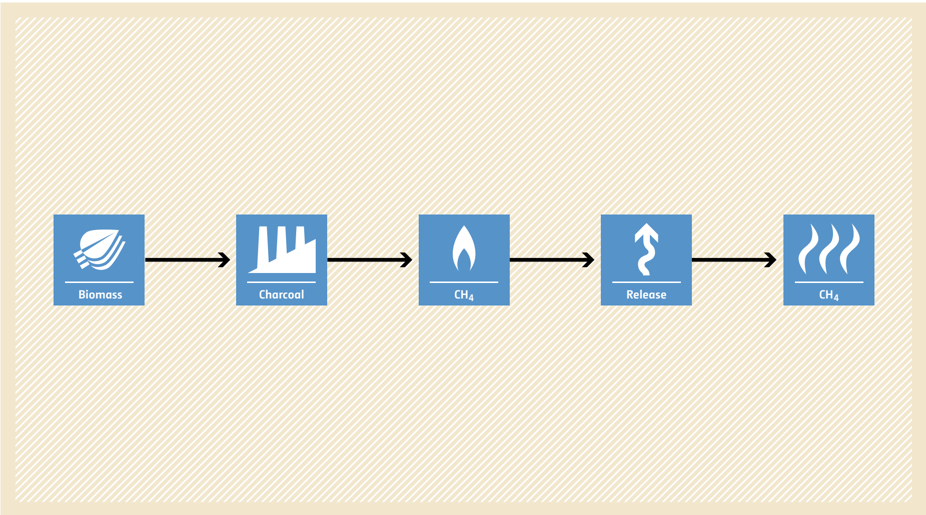
PROJECT SCENARIO
Use of biomass residues for power or heat generation instead of fossil fuel.



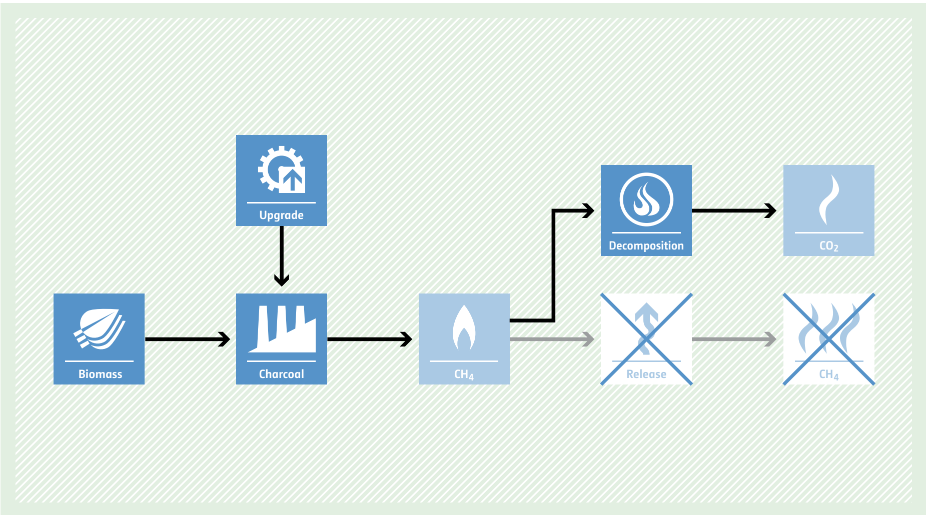
ACM0021 Reduction of emissions from charcoal production by improved kiln design and/or abatement of methane

Typical project(s)	Installation of charcoal kilns of enhanced design to replace existing kilns, and/or installation of methane abatement units at existing or new kilns.
Type of GHG emissions mitigation action	• GHG emission avoidance. Avoidance or reduction of CH_4 emissions in charcoal production process.
Important conditions under which the methodology is applicable	• The project does not change the type and sources of input for charcoal production; • There are no regulations that prevent venting of methane generated from charcoal production facility; • All the existing kilns affected by the project activity shall have the same mechanical design.
Important parameters	Monitored: • Charcoal production of each kiln; • Start time and end time of each carbonization cycle of each kiln; • Combustion status of each methane abatement unit (if applicable).

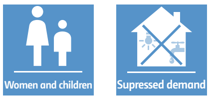
BASELINE SCENARIO
High CH_4 emissions associated with the production of charcoal.



PROJECT SCENARIO
Decreased or avoided CH_4 emissions associated with production of charcoal.



ACM0022 Alternative waste treatment processes



Typical project(s)

The project involves one or a combination of the following waste treatment options: Composting process in aerobic conditions; Gasification to produce syngas and its use; Anaerobic digestion with biogas collection and flaring and/or its use (this includes processing and upgrading biogas and then distribution of it via a natural gas distribution grid); Mechanical/thermal treatment process to produce refuse-derived fuel (RDF)/stabilized biomass and its use; Incineration of fresh waste for energy generation, electricity and/or heat; Treatment of wastewater in combination with solid waste, by co-composting or in an anaerobic digester.

Type of GHG emissions mitigation action

- GHG emission avoidance;
- Renewable energy.

CH_4 emissions due to anaerobic decay of organic waste are avoided by alternative waste treatment processes. Organic waste is used as renewable energy source.

Important conditions under which the methodology is applicable

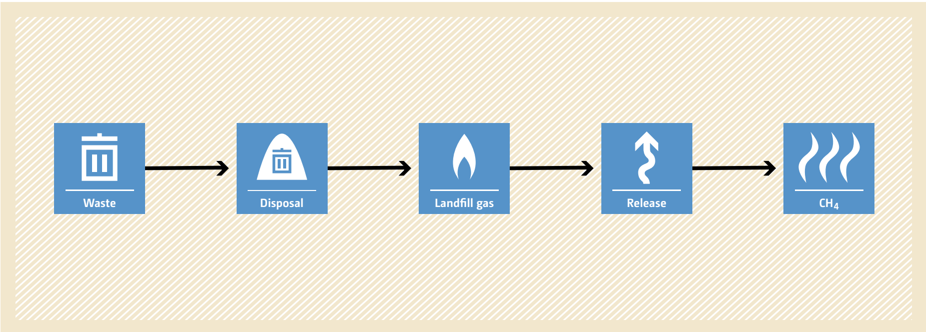
- The project activity does not reduce the amount of waste that would be recycled in the absence of the project;
- Neither hospital nor industrial waste may be treated through anaerobic digestion, thermal treatment or mechanical treatment;
- The baseline scenario is the disposal of the waste in a landfill site without capturing landfill gas or with partly capturing it and subsequently flaring it.

Important parameters

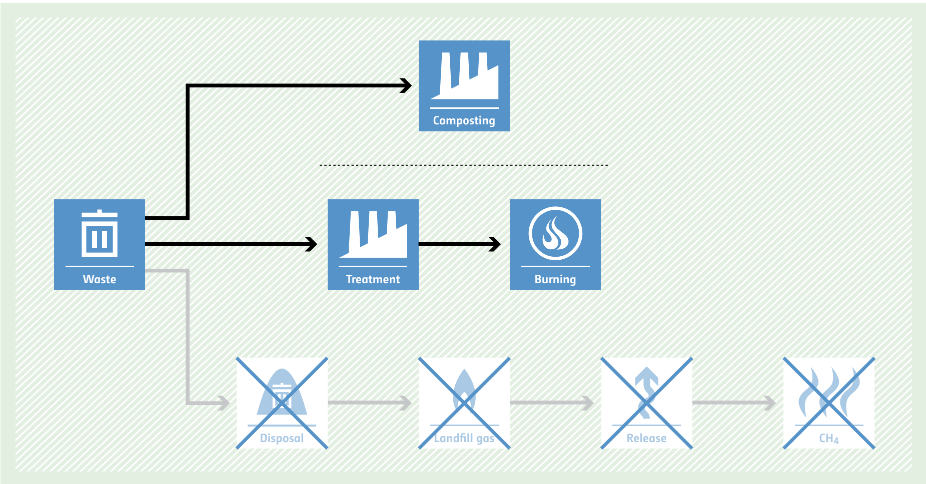
Monitored:

- Weight fraction of the different waste types in a sample (where applicable);
- Total amount of waste prevented from disposal;
- Electricity and fossil fuel consumption in the project site.

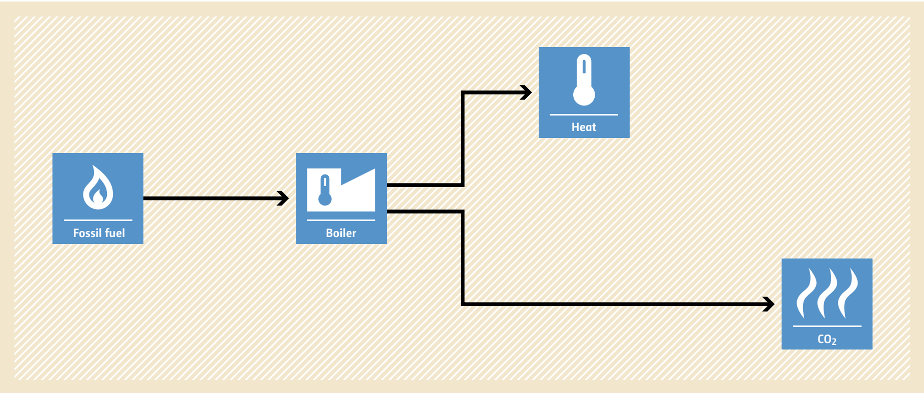
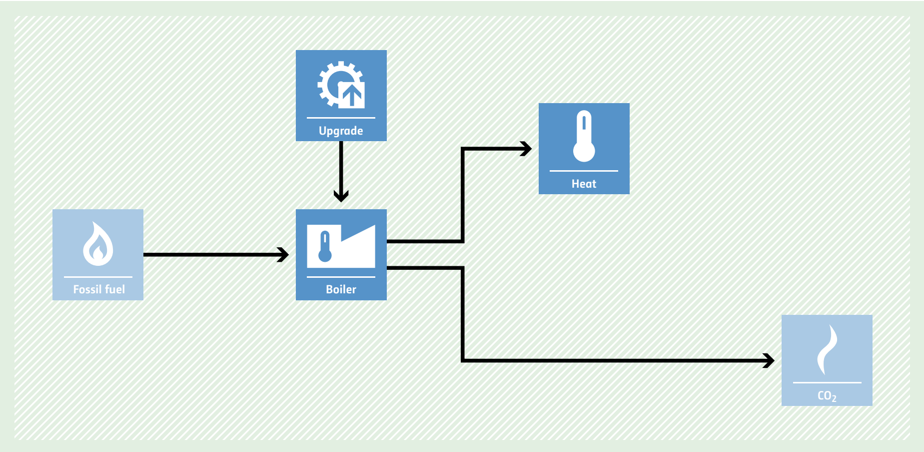
BASELINE SCENARIO
Disposal of the waste in a landfill site without capturing landfill gas or with partly capturing and subsequently flaring it.



PROJECT SCENARIO
Alternative waste treatment process, such as composting, gasification, anaerobic digestion with biogas collection and flaring and/or its use, mechanical/thermal treatment process to produce RDF or SB and its use, or incineration of fresh waste for energy generation.



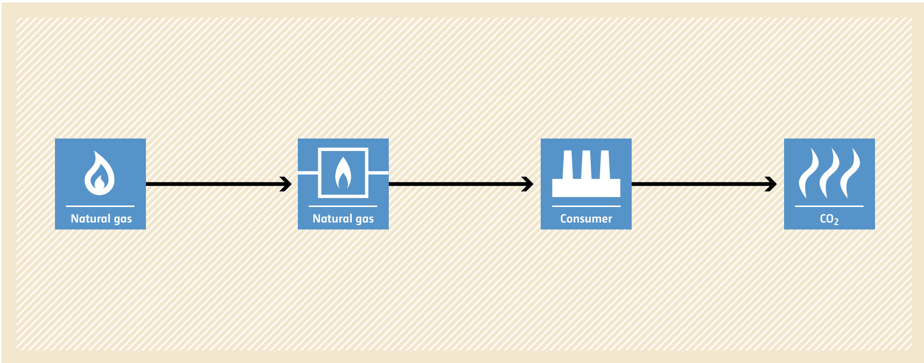
ACM0023 Introduction of an efficiency improvement technology in a boiler

Typical project(s)	Improvement of the boiler efficiency through introduction of efficiency improvement technology.
Type of GHG emissions mitigation action	• Energy efficiency. Switch to more-energy-efficient technology.
Important conditions under which the methodology is applicable	• The boiler has an operating history of at least three years; • The efficiency improvement technology to be used under the project activity was not used at the project facility on a commercial basis prior to the implementation of the project activity; • The type of fossil fuel used by the project during the crediting period was also used during the most recent three years prior to the implementation of the project activity; • The technologies allowed are oil/water emulsion technology, fire side cleaning technology and coal catalyst technology.
Important parameters	At validation: • Historical fuel consumption in boiler.
	Monitored: • Fuel consumption in the boiler; • Energy generation from the boiler.
BASELINE SCENARIO Operation of boilers at lower efficiency of combustion in absence of efficiency improvement technology.	
PROJECT SCENARIO Efficiency improvement technology is introduced to improve the efficiency of boilers.	

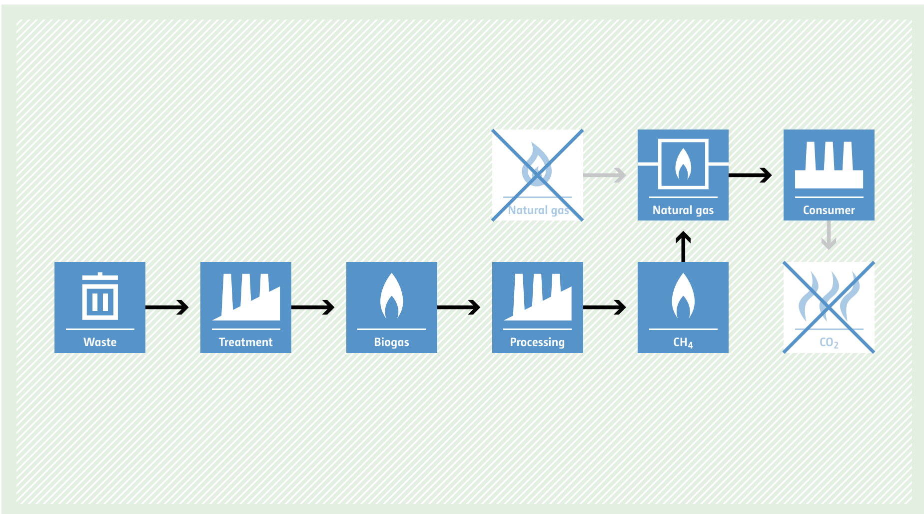
ACM0024 Natural gas substitution by biogenic methane produced from the anaerobic digestion of organic waste

Typical project(s)	Project activities where organic waste (e.g. vinasse, organic MSW, etc.) is treated by anaerobic digestion. The resulted output is upgraded and used to replace natural gas in a natural gas distribution system.
Type of GHG emissions mitigation action	• Renewable Energy. Organic waste is used as renewable energy source by the displacement of natural gas in a natural gas distribution system.
Important conditions under which the methodology is applicable	• The project does not reduce the amount of waste that would be recycled in the absence of the project activity; • Resulting digestate is further stabilized aerobically (e.g. composted), applied to land or sent to a solid waste disposal site; • Neither organic waste nor products and by-products from the anaerobic digester established under the project activity are stored on-site under anaerobic conditions.
Important parameters	Monitored: • Amount of methane produced in the anaerobic digester before upgrading; • Amount of biogenic methane which is sent to the natural gas distribution system after upgrading.

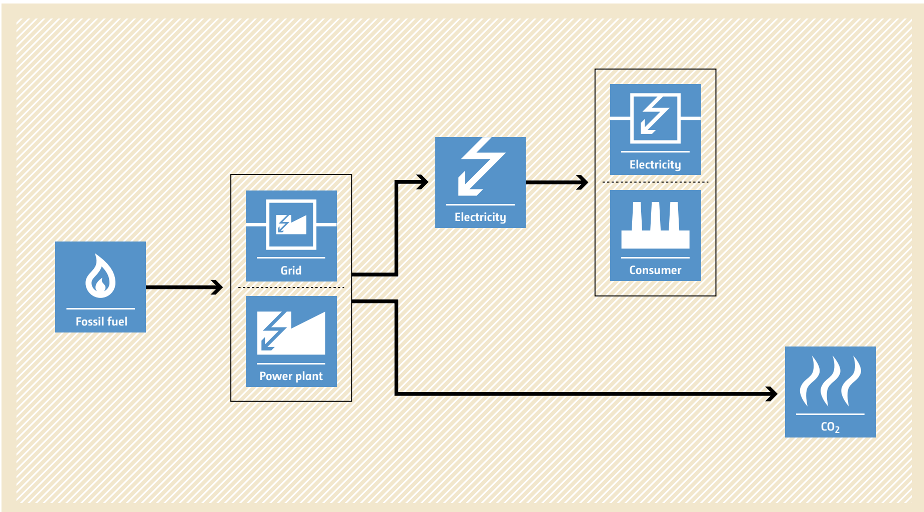
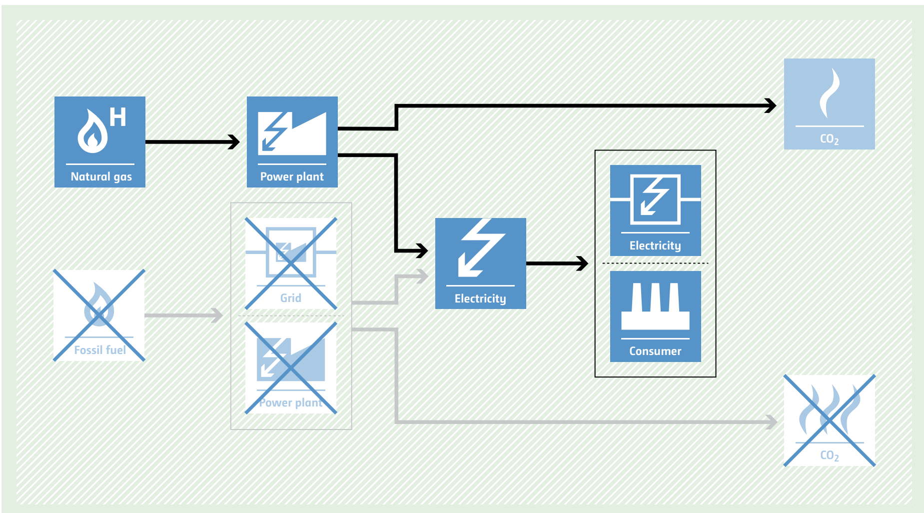
BASELINE SCENARIO
Supply of natural gas to a natural gas distribution system.



PROJECT SCENARIO
Organic waste is treated by anaerobic digestion. The resulted output is upgraded and used to replace natural gas in a natural gas distribution system.



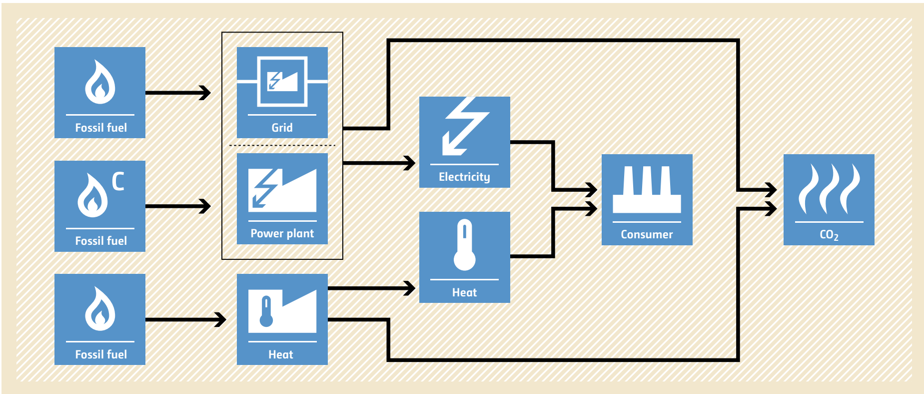
ACM0025 Construction of a new natural gas power plant

Typical project(s)	Installation of a natural-gas-fired power plant that supplies electricity to a grid and/or an existing facility that is also connected to the grid.
Type of GHG emissions mitigation action	• Low carbon intensive electricity generation. Displacement of electricity that would be provided by more-carbon-intensive means.
Important conditions under which the methodology is applicable	• If the project activity power plant co-generates heat, no emission reductions can be claimed for the generated heat; • Natural gas is sufficiently available in the region or country; • In case electricity is supplied to an existing facility: the sources of electricity as well as average historical energy consumption should be presented in the CDM-PDD, and the electricity is supplied through a dedicated electric line.
Important parameters	At validation: • Emission factor of baseline electricity, derived from: (i) An emission factor of the power grid; (ii) The power generation technology that would most likely be used in the absence of the project, or the one currently used at the existing facility.
	Monitored: • Fuel consumption of the project power plant; • Electricity supplied to the electric power grid and/or an existing facility.
BASELINE SCENARIO Power generation using: 1. Natural gas, but with different technologies than the project, 2. Fossil fuels other than natural gas or renewable energy.	
PROJECT SCENARIO Power supply to the grid and/or an existing facility by a new natural-gas-fired power plant.	

ACM0026 Fossil fuel based cogeneration for identified recipient facility(ies)

Typical project(s)	Construction and operation of a fossil fuel cogeneration plant that supplies electricity and heat to a consuming facility(ies).
Type of GHG emissions mitigation action	• Energy efficiency. Technology switch.
Important conditions under which the methodology is applicable	• The electricity and heat requirement of the facility that the project cogeneration plant supplies to (consuming facility) would be generated in separate systems in the absence of the project; • All recipient facilities, existing and Greenfield, shall be clearly identified prior to the implementation of the project activity. Where the project participant plans to claim emission reductions from the electricity supplied to the grid, the grid may be considered as one single recipient facility.
Important parameters	At validation: • Fuel consumption for heat supply by the existing heat-only generation units; • Electricity generation by the grid or the existing power-only generation units; • Emission factor of the grid or the existing power-only generation units.
	Monitored: • Fossil fuel consumption by the project cogeneration plant; • Electricity supplied by the project cogeneration plant to the consuming facility; • Heat supplied by the project cogeneration plant to the consuming facility.

BASELINE SCENARIO
The electricity demand of a facility(ies) is satisfied via either power-only generation units, or the grid and heat from heat-only generation units.



PROJECT SCENARIO
The recipient facility(ies) is supplied electricity and heat from a fossil fuel based cogeneration plant.