

Financing China's Methane Abatement:

Exploring Decarbonisation and Investment Opportunities in Key Sectors



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Climate Bonds Initiative

Climate Bonds Initiative (Climate Bonds) is an international organisation working to mobilise global capital for climate action. It promotes investment in projects and assets needed for a rapid transition to a low-carbon, climate resilient, and fair economy. The mission focus is to help drive down the cost of capital for large-scale climate and infrastructure projects and to support governments seeking increased capital markets investment to meet climate and greenhouse gas (GHG) emission reduction goals. Climate Bonds conducts market analysis and policy research; undertakes market development activities; advises governments and regulators; and administers a global green bond Standard and Certification scheme.

Glossary

CCER: Chinese certified emission reduction

ETS: emissions trading system

GHG: greenhouse gas

GSS+: green, social, and sustainability (GSS) bonds plus sustainability-linked bonds (SLBs)

GWP: global warming potential

LDAR: leak detection and repair

LULUCF: land use, land-use change, and forestry

MRV: monitoring, reporting and verification

NDC: nationally determined contributions

VAM: ventilation air methane

Report summary



Methane's (CH₄) contribution to global warming is second only to carbon dioxide (CO₂) and substantial, rapid, and sustained reductions are required to avert catastrophic climate impacts over this century. With a global warming potential (GWP) of more than 80 times that of CO₂ over 20 years, methane is a relatively short-lived but extremely potent greenhouse gas (GHG) compared to CO₂. Targeted methane abatement measures can therefore have a significant impact on global warming before 2050 and are essential for helping to avoid catastrophic climate change and crucial climate tipping points.¹ As the largest emitter of methane, China's update of its nationally determined contribution (NDC) in 2025 to include non-CO₂ GHGs presents an important window of opportunity to accelerate methane abatement action.

This report offers an overview of China's current methane abatement policies and recent developments in sustainable finance aimed at supporting methane reduction efforts. It analyses methane emissions across key sectors, including energy, agriculture, and waste management, as well as exploring how sustainable finance can help channel capital toward effective methane abatement solutions.

Methane abatement presents new opportunities for both green and transition finance. As financing solutions for methane reduction technologies continuing to emerge, the potential for further scaling the country's sustainable finance market is significant. By identifying financing needs and opportunities, improving voluntary carbon market mechanisms, and promoting innovative financial products, China can diversify funding sources and enhance access to capital for methane projects, thereby driving growth in sustainable finance.

Policy guidance for methane projects is becoming more developed, signalling the potential for various financing models and instruments, including sustainable bonds, to accelerate technology deployment. Methane-related projects are increasingly integrated into China's sustainable finance and climate investment frameworks. As national, subnational, and sectoral policies strengthen the enabling environment, the pipeline of financeable projects is expected to grow, driving greater demand for financing.

National and municipal governments can create an enabling environment by clarifying regulations. Recommendations include incorporating methane in future NDCs and policy documents, integrating technical criteria into green taxonomies, offering incentives such as tax relief and subsidies, extending the coverage of China's emissions trading scheme to include methane, strengthening coalmine closure procedures, and improving monitoring, reporting and verification (MRV) through coordination and data-sharing across government agencies.

Financial institutions (FIs) should raise awareness of methane risks, integrate methane abatement into their transition planning, and diversify products for methane abatement. Suggested actions include more research by FIs to build the knowledge base of methane exposure across their portfolios, setting medium- and long-term methane reduction targets, matching investment pipelines with policy priorities, and developing diverse debt and equity products to support abatement in agriculture, energy, and waste sectors.

1. State of play



Methane is a potent GHG, second only to CO₂ in its contribution to global warming. It is estimated that methane has been responsible for approximately 30% of global warming since the Industrial Revolution.² The growing momentum for methane abatement is driven by a broad consensus that urgent, sustained action is essential to curb rising emissions and mitigate severe climate impacts.

For China, which recently updated its NDC to include all GHGs for the first time, this marks a critical turning point for scaling up methane mitigation efforts over the next decade. While China has not yet reached its peak total GHG emissions, it has committed to reducing emissions by 7–10% relative to the peak by 2035. Achieving this goal will inevitably require enhanced methane abatement strategies.

Therefore, a clear understanding of China's methane emissions profile, evolving policy landscape, and mitigation potential is crucial for identifying actionable pathways to accelerate progress in methane reduction.

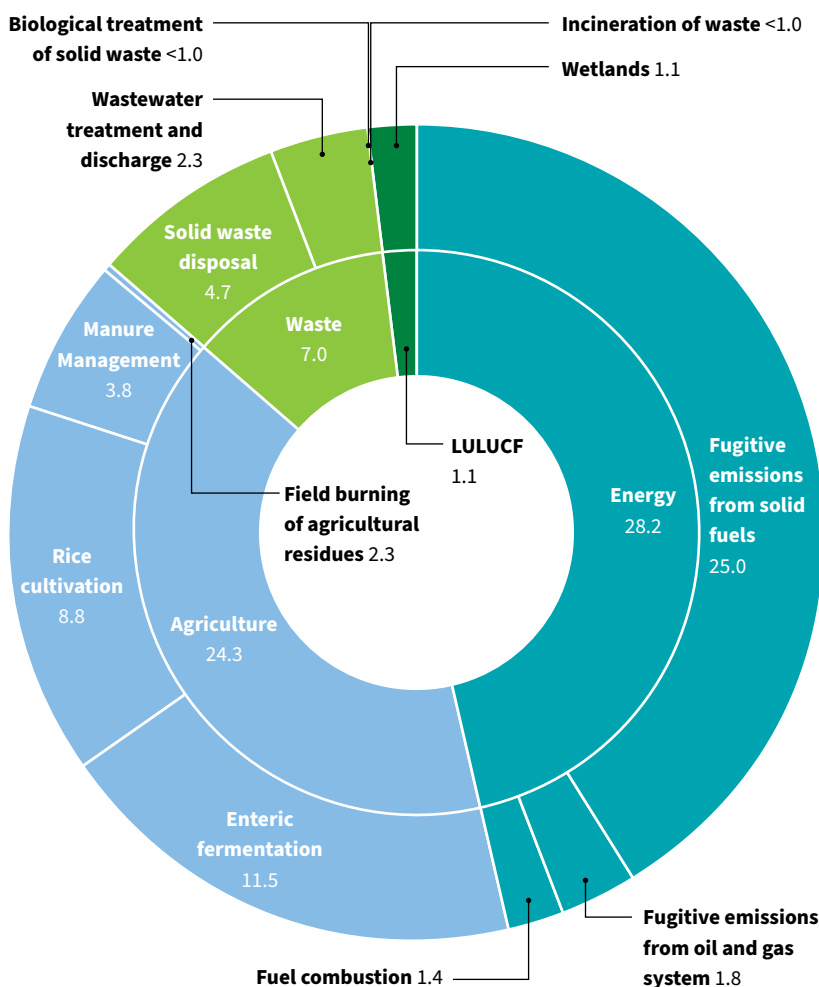
1.1. The largest emitter: China's methane emission profile

China is the largest national methane emitter, according to estimates from the International Energy Agency (IEA), accounting for 16% of global emissions.³ As China advances its decarbonisation agenda, methane abatement is expected to become the priority area for the next phase, with more policy measures taking shape and thus creating market opportunities.

China's total methane emissions (including land use, land-use change, and forestry) in 2021 stood at 60.6 million tons, according to China's report under the United Nations Framework Convention on Climate Change (UNFCCC).⁴ Among them, methane emissions from energy and agriculture accounted for 46% and 40%, respectively; 12% from waste treatment; and 2% from land use, land use change, and forestry (Figure 1). However, this is subject to uncertainty as much of the calculation in the report is based on emissions factors.⁵

- **Energy sector:** Methane accounts for 7% of GHG emissions in China's energy sector, originating from coal, oil, and natural gas production, with coal accounting for about 93% of energy-sector methane emissions.⁶ In addition, estimates from the IEA reveal that in 2024, methane emissions from abandoned coalmines reached 6 million metric tons with 60% originating from China.⁷ While energy transition will reduce the consumption of coal, abandoned facilities will still require additional measures to curb ongoing methane emissions.

Figure 1. Methane emissions by sector in China in 2021



Methane emissions unit: 10,000 tons. Data source: Ministry of Ecology and Environment (2025).²³

- **Agriculture:** Methane accounts for 73% of agricultural GHG emissions in China.⁸ Enteric fermentation (the digestive process of livestock) and rice cultivation are the two largest sources of agricultural methane emissions. Approximately 47% of agricultural methane emissions stem from livestock digestion, while 37% originate from rice paddies.⁹
- **Waste sector:** Methane accounts for over 80% of GHG emissions in this sector, with the majority originating from landfills, followed by wastewater treatment, incineration, and biological treatment.¹⁰

1.2. China methane abatement targets and actions

China's efforts to control methane emissions are critical both for domestic environmental improvements and for meeting global climate goals.¹¹ In 2023, China released the **Methane Emissions Control Action Plan**, which sets out specific objectives and a detailed action plan to reduce methane emissions in all areas (see Box 1).¹² As the country's first comprehensive policy document dedicated solely to methane, the plan serves as the most authoritative framework to date. A subsequent *2024 Key Work Plan on Methane Emissions Control* further refines the implementation roadmap.

In September 2025, China announced its updated NDC and a 7% reduction in economy-wide net GHG emissions to 10 percent from peak levels by 2035, while striving to do better.¹³ This is the first time that non-CO₂ GHGs are covered in China's NDC, in addition to its goals of peaking carbon dioxide emissions by 2030 and achieving carbon neutrality by 2060. By doing so, China can promote domestic and international cooperation to further strengthen its emission reduction efforts and reinforce its commitment to global climate change goals, while catching up with international best practices.^{14,15}

While methane is included in overall emission reduction targets, the NDC does not yet set specific targets for methane abatement. It is essential that these targets should be established, along with detailed measures for achieving them in the highest-emitting sectors, in line with the Katowice Guidance agreed upon by all Parties to the Paris Agreement.

Box 1. Understanding the Methane Emissions Control Action Plan

China's **Methane Emissions Control Action Plan** establishes the necessary policy infrastructure for effective methane management. It outlines key components such as emissions monitoring systems, research methodologies, legal and regulatory frameworks, technical standards, and incentive mechanisms. As a pivotal guide for policy formulation, the Action Plan directs ministries to implement specific tasks and has catalysed the development of corresponding provincial action plans.

The Action Plan also sets quantitative targets for critical sectors, such as an annual coal gas utilisation target of 6 billion cubic metres by 2025, achieving a livestock manure utilisation rate of 80% or more, and a 60% reuse rate for urban waste. However, some key objectives related to emissions or intensity limits remain qualitative. These include enhancing technical capacity and making positive strides in emissions control, indicating a broader focus on capacity building and gradual progress in emission reduction efforts.

For methane abatement in the energy, agriculture, and waste sectors, the Action Plan identifies the following priorities:

- **Strengthening methane monitoring, reporting, and verification (MRV)** to expand monitoring coverage, develop supporting institutional frameworks, and improve data management systems.
- **Energy sector:** enhance comprehensive utilisation of methane, including controlling vented methane from oil and gas fields, boosting methane capture and use from coal mines, and recovering associated and vented gas; scale up leak detection and repair (LDAR); and phase down routine flaring in oil and gas systems.
- **Agriculture sector:** advance the resource-efficient use of livestock manure; manage enteric fermentation to reduce methane emissions; and implement phased methane abatement in rice paddies.
- **Waste sector:** improve methane control in waste management and enhance capture and utilisation in wastewater treatment.

The Action Plan also calls for synergistic pollutant control, technological innovation, regulatory development, and international cooperation. As the first dedicated methane abatement framework, it signals an elevated priority of methane abatement in national climate action and sets an important precedent for subsequent policies at the national and local levels.

As methane emissions span across different sectors, multiple regulators are involved with respective responsibilities (see Table 1).

Municipal governments are actively responding to national directives by developing their own methane abatement plans. To date, municipalities including Beijing, Ningxia, Tianjin, Shanxi, Hubei, Guangdong, Liaoning, Yunnan, and Hunan have published action plans for methane abatement (see Appendix 3).¹⁶ These plans address energy, agriculture, and waste (solid waste and wastewater) sectors and include tailored measures based on provincial industrial profiles.

- Shanxi, for example, has set quantitative targets for coal mine methane control and pledged to pilot closure projects for methane management and utilisation.
- Guangdong is advancing methane abatement through technological innovation, such as supporting a demonstration project on landfill gas-to-green-hydrogen/methanol technology in Guangzhou.
- Most provinces also encourage the inclusion of methane abatement projects in eco-environment-oriented development (EOD) project databases and support the development of China certified emission reduction (CCER) projects. Inclusion in the EOD project databases will qualify the projects for municipal subsidies and recommendations by governments to financial institutions, providing financing opportunities. For example, Hubei Province plans to leverage its existing low-carbon development fund; mobilise capital from banks, securities firms, insurers, and equity funds; and encourage innovation of green finance products.

With policy frameworks gaining clarity, there is anticipated expansion of the development pipeline and financing needs for methane abatement projects, creating incremental business opportunities for sustainable finance.

1.3. Abatement potential in China

According to estimates by the IPCC, to meet the 1.5°C temperature control target, global methane emissions need to be reduced by 40–45% by 2030.¹⁷ Among all sectors, the energy industry presents the most significant potential for methane abatement and notably, 30% of methane emissions can be avoided at no net cost.¹⁸

Within the energy sector, the oil and gas industry show even greater cost-effective mitigation potential compared to the coal industry. This is primarily because the expenditure required for relevant measures is generally lower than the economic benefit gained from recovering methane.

In China, the primary sources of methane reduction are expected to come from the energy and agriculture sectors. By 2030, it is estimated that a 30% reduction in methane emissions can be achieved through the implementation of economically viable technical abatement measures (i.e., technological and activity-level solutions to reduce the amount of methane released by an activity), such as biochar application and utilisation of coal mine methane.¹⁹ Abatement potential could be further increased by behavioural measures such as reduced fossil fuel consumption, food waste reductions, and dietary changes.

Table 1. Roles of key ministries in methane abatement

Ministry/Agency	Methane-related responsibilities
Ministry of Ecology and Environment (MEE)	Lead policymaking for methane control, develop monitoring systems, oversee data verification
National Development and Reform Commission (NDRC) & National Energy Administration (NEA)	Methane reduction in the energy sector, including coal mine methane utilisation and oil and gas methane abatement
Ministry of Agriculture and Rural Affairs (MARA)	Methane reduction in agriculture, such as rice water management and livestock manure treatment
Ministry of Housing and Urban-Rural Development (MOHURD)	Methane control in the waste sector, including landfill and wastewater treatment
Ministry of Science and Technology (MOST) & Ministry of Industry and Information Technology (MIIT)	Development and deployment of methane abatement technologies
Ministry of Finance (MOF)	Design and implementation of economic incentives for methane reduction
People's Bank of China (PBOC)	Lead the formulation of green finance taxonomies with entries on methane abatement

Source: Climate Bonds Initiative, from public policy documents.

Table 2. Sectoral technical methane abatement potential

	2024 emissions (Mt CH ₄)	Estimated abatement potential (Mt CH ₄)	Estimated global sectoral technical abatement potential
Agriculture	18.2	3.7	20%
Oil and Gas	3.2	2.5	77%
Coal	19.2	11.4	59%
Waste	9.4	4.2	45%

Source: Climate Bonds Initiative, data from IEA and UNEP^{24,25}

Note: this table does not include abandoned facilities as abatement potential could not be estimated.

Energy sector abatement potential will stem mainly from the coal industry. With implementation of emission control measures and working on the assumption of accelerated energy transition (i.e., phasedown of coal power), by 2030 methane emissions related to coal could be significantly reduced to 34-45% of what they would have been without action.²⁰

In agriculture, improvements in irrigation practices in rice cultivation and the adequate use of biochar as organic fertilisers could bring about a 33% reduction in methane emissions by 2030.²¹ In the livestock industry, a combination of promoting low-emission breeds of cattle and sheep, improving feed quality, and optimising manure management could lead to a 36% reduction in methane emissions.²²

2. Accelerating methane abatement through sustainable finance



2.1. Methane reduction financing needs in key sectors

The Climate Policy Initiative (CPI) projects that annual global investment of up to USD48bn is required for methane abatement by 2030, which is at least 3.5 times the current level. China's methane abatement investment needs are likely to be around USD7.7bn per year (approximately CNY55.2 bn).²⁶

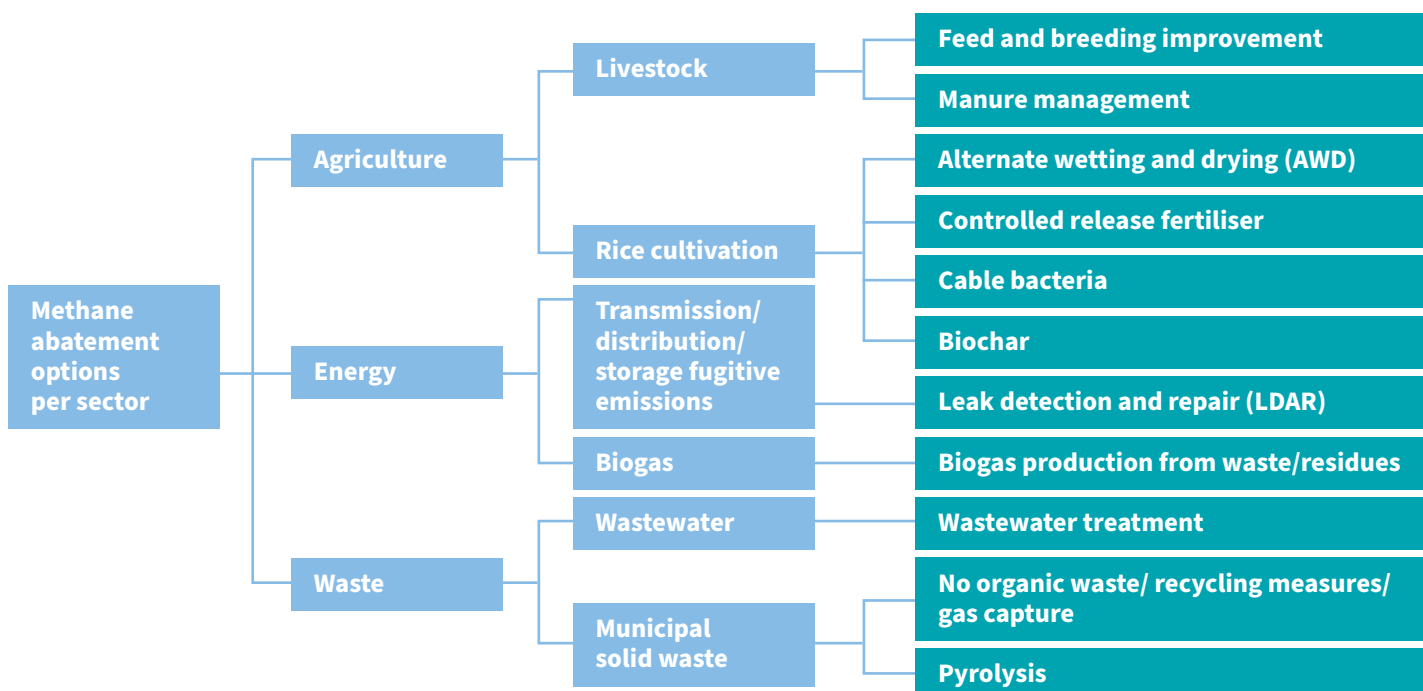
Investment opportunities are concentrated in three sectors aligned with China's Methane Emissions Control Action Plan: energy, agriculture, and waste (solid waste and wastewater). However, solutions within these sectors are highly fragmented, with investment required across value chains. Figure 2 highlights the range of methane abatement measures in the energy, agriculture, and waste sectors, mapped by Climate Bonds.

Although methane reduction technologies are technically available in key sectors, several challenges persist, ranging from limited implementation capacity to fragmented project development. A common issue is the mismatch between financing needs and the availability of suitable financial instruments, which vary depending on the stage of technology deployment and how a particular technology is deployed (Table 3).

Against the sector-specific implementation challenges laid out in Table 3, broader structural challenges include:

- **Weak regulatory drivers.** While corporate transition efforts are primarily motivated by regulatory pressure or market expectations, current regulations are high-level and not yet stringent. As discussed in Section 1, current methane regulations have not yet imposed any quantitative emission or abatement targets, or direct incentive or punitive measures.
- **Limited investor demand.** Investor awareness of and appetite for methane abatement also remain limited because methane is not commonly factored into financed emissions by FIs or included in institutional transition finance frameworks.
- **Fragmented and small-scale projects.** Methane sources are highly dispersed, for example, in individual coal mines, oil and gas fields, rice fields, or livestock. Many projects lack stable cash flows or bankable business models, particularly in agriculture and waste management, where methane can be costly to collect and reuse.

Figure 2. Mapping of technical methane abatement activities in taxonomies



Source: Climate Bonds Initiative

Table 3. Methane abatement in key sectors

Sector	Main sources in China	Implementation challenges	Technologies	Economic feasibility
Oil and Gas	Fugitive emissions during exploration, production, and transport, venting, and flaring.	Advanced detection technologies are available but need to combine equipment- and facility-level monitoring. Application of foreign technologies in China may not yield the same positive results.	Leak detection and repair (LDAR); eliminating routine venting; flare minimisation; methane capture and use with zero-emissions pneumatic compressors.	Mature technologies but require capital for equipment; high upfront investment although mostly matched by returns from selling the gas. Projects are often small-scale relative to overall sector finance; limited cost-benefit appeal. Without regulation or carbon pricing, corporate uptake is low.
Coal mining	Methane released during extraction; ventilation air methane (VAM), and methane released once operations ceased.	Technology for the usage of low-concentration methane is mature but economically challenged. Technical feasibility depends on mine conditions while safety risks can be significant.	Methane capture for power and heat; flameless oxidation of VAM.	Low-concentration methane has poor return profile, which can be improved by the use of carbon credits and green power subsidies. May require additional investment for infrastructure.
Rice cultivation	Anaerobic decomposition under waterlogged conditions.	Requires periodic flooding for yield; cultivation itself is labour-intensive; rural depopulation makes behaviour change difficult; implementation and monitoring are challenging when land managed by multiple smallholders.	Alternate wetting and drying; water and fertiliser management; improved varieties and cultivation techniques.	Changes in irrigation need no new equipment, but promoting new varieties and practices is labour- and time-intensive, without direct linkage to cost bearer and beneficiaries. Breeding faces commercialisation barriers.
Livestock	Enteric fermentation; anaerobic manure management.	Enteric fermentation is natural and hard to eliminate; manure management requires centralised systems which is not usually the case in rural areas.	Feed optimisation; anaerobic digestion for biogas; improved manure management systems; improved breeds.	Feed improvements are costly and depend on feed types; manure management facilities require high capital but returns can be improved through biogas and potential incentives.
Waste management	Anaerobic decomposition of organic matter in landfills; wastewater.	Retrofitting older facilities is often effective but lacks direct drivers; dispersed emission points may be hard to manage.	Waste separation and composting of organic waste. Landfill gas capture and utilisation (power, direct use, or pipeline-quality gas); anaerobic wastewater treatment.	Technologies are mature in the commercial sense. Capital is needed for retrofitting existing facilities.

2.2. Sustainable finance markets and methane abatement

The sustainable finance market plays an increasingly pivotal role in supporting the low-carbon transition of the economy. China's sustainable finance market has become a key driver of the country's low-carbon transition, expanding rapidly under a robust policy and standards framework. Since the 2015 release of the *Guidelines for Establishing a Green Financial System*, which defined green finance as supporting environmental improvement, climate action, and resource efficiency, government-led standard-setting has progressively aligned with domestic and international frameworks.

The latest *Green Finance Supported Project Catalogue (2025 Edition)*—the third revision since 2015—broadens the scope of eligible green activities and standardises reporting definitions, reducing costs for private actors and propelling market growth. These taxonomies and guidance-based credit policies have channelled significant resources into sustainable projects: as of the end of 2024, China's outstanding green loans totalled CNY36.6tn (an increase of 21.7% year-on-year), while cumulative green, social, and sustainability (GSS) bonds plus sustainability-linked bonds (SLBs), collectively known as GSS+ bond issuance totalled USD555.5bn, keeping China among the world's top GSS+ markets.²⁷

As China updates its NDCs and strengthens sectoral climate actions, economic activities related to methane abatement are gradually being incorporated into China's green finance

and climate investment and financing frameworks. However, financing mechanisms and financial instruments that specifically support methane abatement technologies remain at an early exploratory stage, and there is a lack of empirical data on current funding needs and the scale of financing instruments. The core building blocks of sustainable finance, i.e., taxonomies, policy incentives, and labelled financing instruments, can be adapted to mobilise capital for methane abatement technologies, project deployment, and supporting infrastructure such as monitoring and data systems. Mapping the current state of sustainable finance for methane abatement can help regulators design a more enabling policy environment and enable enterprises and financial institutions to seize new opportunities.

This section reviews the financing mechanisms that support methane abatement in the energy and agriculture sectors, analysing the features, opportunities, and challenges of various instruments.

Laying the foundation for methane abatement financing

The increasing prioritisation of methane abatement is gradually leading to its inclusion in regulation, incentive systems, and financial standards. This is driven by its inclusion in an increasing number of national and regional climate commitments. For example, Climate Bonds has issued sectoral financing Criteria for methane abatement in oil and gas, agriculture, and waste management, providing technical references to help financial institutions identify eligible investments.

Table 4. Summary of green and transition finance policies that can support methane abatement

Key component	Objective	Details and application to methane abatement
Definitions and taxonomies	Provide clear investment guidance and alignment; prevent greenwashing.	Include methane emissions thresholds for abatement measures in the next iteration of the Green Finance Endorsed Project Catalogue and transition finance taxonomies; issue sector-specific standards and guidance; and develop templates for integrating methane targets into corporate transition plans.
Real economy incentives	Enhance profitability of projects to meet commercial standards.	Targeted interest subsidies, guarantees, and insurance premium support; tax incentives for abatement measures with lower economic returns; promotion of preferential pricing for low-methane products.
Monetary policy	Incentivise banks to lend.	Use monetary policy tools (e.g., targeted relending and rediscounting, such as the 'Carbon Emission Reduction Facility' and 'Special Relending for Clean and Efficient Coal Use').
Policies and market incentives	Mobilise private-sector investment through enabling mechanisms.	Incorporate methane performance into the green finance assessments of the prudential regulatory framework of the PBOC.
Financial guarantees and subsidies	Address financing and risk management needs of methane projects.	Encourage financing of methane abatement technologies and projects through loans, bonds, equity, insurance, and carbon markets. Incorporate methane projects into government-backed credit guarantee systems and national financing guarantee funds to de-risk investment.
Disclosure and reporting	Reduce information asymmetries for market actors.	Require companies and financial institutions to disclose methane abatement progress. Use-of-proceeds bonds should report on fund allocation and outcomes; KPI-linked bonds should disclose progress and results against selected indicators. Sector-wide emissions reporting requirements reduce reporting burdens of bond issuance.
Climate investment mechanisms	Create new revenue streams or financing opportunities	Expand CCER methodologies for methane projects, enabling carbon-credit generation and compliance offsetting; include methane projects in local climate finance project databases which makes them eligible for differentiated subsidies.

Source: Climate Bonds Initiative

Supervisory authorities such as the People's Bank of China (PBOC) and the National Development and Reform Commission (NDRC) are actively shaping the transition finance market to support the decarbonisation of hard-to-abate sectors not fully covered by traditional green finance, such as oil and gas, coal, and agriculture. As demands for measurable environmental outcomes intensify, projects with demonstrable mitigation benefits are set to attract greater investor attention.

China's Ministry of Ecology and Environment (MEE), responsible for the nation's climate action plans, plays a key role in methane control policymaking, including the development of monitoring systems and data verification oversight. The Climate Investment and Finance Association of China (CIFA), under the MEE, coordinates research and hosts an annual conference to support methane abatement policies and practices.

Taxonomy and definitions

Existing green finance and industry taxonomies in China have already included several methane abatement projects, but most references remain high-level and lack the technical specificity needed to drive large-scale sectoral action.

Capture and utilisation of methane from coalbed and oil and gas field have been included in multiple taxonomies and standards, such as the *Guiding Catalogue for Green and Low-Carbon Transition Industries* (2024 Edition issued by the National Development and Reform Commission) and *Climate Investment and Financing Project Classification Guidelines* (a group standard issued by CIFA in 2021), while installation of methane leak detection and repair (LDAR) systems is included in the *Green Bond Endorsed Project Catalogue* (2021 Edition).

However, these taxonomies have yet to define performance benchmarks or technical standards for abatement technologies or measures. Additionally, while categories such as green agriculture, livestock farming, and wastewater treatment are included in some of the taxonomies, they do not mandate reporting on methane abatement impacts. As a result, these areas have not received adequate attention.

A notable exception is the 2025 edition of the Green Finance Endorsed Project Catalogue, the first comprehensive Chinese taxonomy covering all financial instruments. This version expands the scope to include waste gas recovery equipment manufacturing and trade, methane reduction in rice cultivation (through breed adjustments and low-carbon technologies), and enteric fermentation reduction in cattle, horses, and sheep (via breed and feed improvements). These categories are explicitly marked as contributing to GHG reduction, signalling a stronger policy focus on methane abatement within China's green finance framework. However, similar to previous examples, the inclusion of further technical criteria would enhance its usability.

Future transition finance taxonomies can expand support for methane-related activities by incorporating performance-based technical criteria that define abatement outcomes, helping to mitigate the carbon lock-in risks of fossil energy investments.

Table 5. Methane abatement activities in China's taxonomies

Sector	Current taxonomy coverage	Additional methane abatement options
Agriculture	Enteric fermentation reduction (breed/feed improvement)	Manure storage and management systems (covered lagoons, anaerobic digesters)
	Manure management*	Alternate wetting and drying (AWD)
	Improved rice varieties	Controlled-release fertiliser and soil amendments such as biochar
	Low-carbon rice cultivation practices	Cable bacteria or microbial interventions
Energy	LDAR systems in natural gas infrastructure	Continuous methane monitoring system (sensors, drones, satellite, vehicles, etc.)
	Methane capture and utilisation in oil and gas fields	Pneumatic device replacement programmes
	Coalbed methane utilisation	Venting and flaring reduction technologies
Waste	Waste gas recovery equipment	Methane capture, upgrading and grid injection from landfill and wastewater systems
	Wastewater and sludge treatment infrastructure*	Composting and anaerobic digestion systems
	General solid waste treatment*	Pyrolysis with methane-control requirements
	Biomass utilisation*	Source-separated organic waste collection

Source: Climate Bonds Initiative
 Note: Entries marked with * are included in taxonomies but not with specific reference to methane abatement.

Since 2012, Climate Bonds has developed the Climate Bonds Taxonomy and associated Certification schemes to guide capital markets in financing climate-aligned investments. These voluntary standards, covering the use of proceeds, assets, entities, and sustainability-linked instruments, are widely recognised by international bond markets. To date, the Taxonomy spans 23 sectors.

- In its agriculture standard, Climate Bonds sets requirements and targets for methane abatement in livestock farming, rice cultivation, and organic fertiliser use. It also defines entity-level criteria for certifying sustainability-linked debt instruments that cover scope 1 methane emissions.
- In its waste management standard, Climate Bonds includes technical guidelines for methane reduction through composting and anaerobic digestion, offering practical benchmarks for market participants.

The Climate Bonds Taxonomy has served as a reference for developing official green or transition finance frameworks in jurisdictions including the European Union, Singapore, ASEAN, Australia, and the Hong Kong SAR. It will continue to incorporate economic activities related to methane abatement, leading the development and alignment of global green and transition finance standards, and helping mobilise capital to support methane reduction in key sectors. Climate Bonds is also assisting jurisdictions like Hong Kong SAR and Singapore in developing transition finance taxonomies.

Actions from financial institutions on methane abatement

Although methane abatement has not yet become a widely supported area for green or transition finance in the financial sector, and most existing market standards remain voluntary rather than mandatory, a growing number of financial institutions and investors globally are actively exploring the issue across multiple dimensions, including climate target-setting, responsible investment practices, and capacity building.

For example, **Standard Chartered** announced in May 2024 that it would establish methane emissions baselines for its oil and gas clients and set science-based reduction targets by 2025, marking the first inclusion of methane-specific indicators in its climate roadmap. In its net zero white paper, the bank outlined key abatement measures for the oil and gas sector, including improving operational efficiency by reducing methane leakage, venting, and flaring, as well as deploying carbon capture, utilisation, and storage (CCUS) technologies to reduce emissions at source.

Nordea Asset Management has made methane abatement a priority of its fiduciary duty work since 2022, focusing on high-emitting sectors. It launched a three-year collaborative engagement programme, bringing together selected investors and clients to conduct systematic dialogues with publicly listed companies in the energy, utilities, and waste management sectors. These discussions focus on methane monitoring, reporting, and mitigation.

In 2023, **BNP Paribas** announced a new R&D partnership with environmental data company Kayrros to enhance methane monitoring and reduction in the oil and gas industry. Using AI to process satellite data from the European Space Agency and North American space agencies, Kayrros offers near real-time tracking of global methane emissions and other key climate indicators. BNP Paribas will leverage this technology to better understand methane footprints in the oil and gas sector and to develop more accurate sector-level methane metrics.

These examples demonstrate the diverse pathways through which financial institutions can support methane abatement, whether by strengthening risk identification and management through responsible investment, data tool development, and internal capacity building, or by mainstreaming methane issues into sustainable finance via climate target-setting, product innovation, and contributions to market standard-setting.

Box 2. Guidance for including methane abatement in oil and gas debt structuring²⁸

The **Methane Finance Working Group (MFWG)** was launched at COP28 in 2023 to promote market-tested financial mechanisms that support decarbonisation in the oil and gas industry. The group aims to provide practical financing pathways for methane abatement while fostering international cooperation. Its founding members include the **Environmental Defense Fund (EDF)**, **Climate Bonds Initiative**, **Rocky Mountain Institute (RMI)**, **Atlantic Council**, **Columbia University's Center on Global Energy Policy**, and **McKinsey & Company**.

In July 2025, the MFWG released the **Guidance for Including Methane Abatement in Oil and Gas Debt Structuring**. The document offers a set of actionable, market-based financing approaches to support methane emissions control in the oil and gas sector. It enables oil and gas companies, investors, and lenders to incorporate methane and flaring performance into debt financing frameworks, thereby facilitating large-scale emissions reduction.

The guidelines address two main categories of debt instruments: Use-of-proceeds and KPI-linked instruments. Capital seekers are advised to follow guiding principles aligned with ICMA frameworks, which emphasize measurable, durable emissions reduction, minimising carbon lock-in risks, and excluding the development of new oil and gas fields.

Additionally, the guidelines propose technical thresholds, criteria for KPI selection, and requirements for environmental impact accounting, disclosure, and third-party verification, with technologies assessed on three dimensions: carbon lock-in risks, performance, and completeness.

While there has not been a Chinese financial institution with an explicit strategy on methane, these global first movers have historically played an important role in introducing cutting-edge themes such as transition finance and biodiversity finance into China's green finance ecosystem. Foreign financial institutions can help foster early industry dialogue on methane, share methodologies and experiences, pilot methane-focused financial products, and support the development of more robust domestic standards. Their participation can help build technical confidence, reduce perceived risks, and ultimately contribute to mainstreaming methane abatement within the Chinese financial sector.

Debt instruments for methane abatement

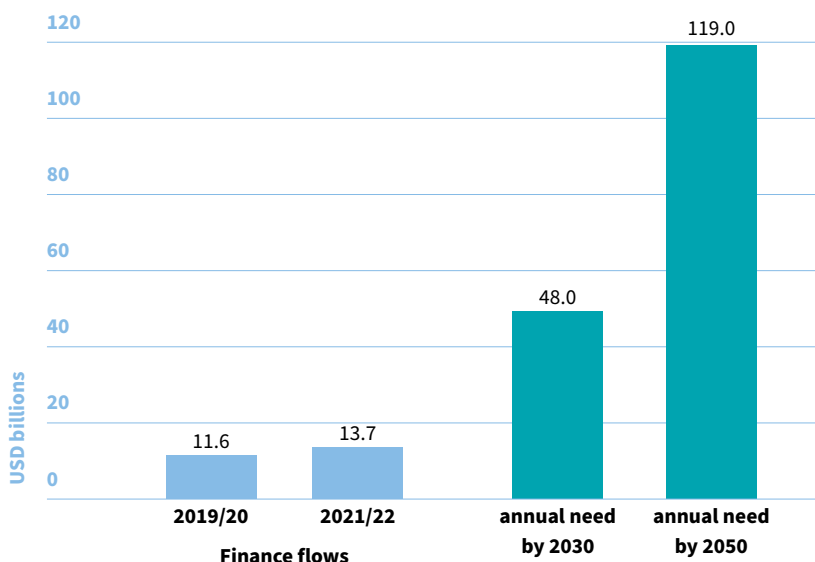
Globally, CPI estimates that methane abatement requires an annual investment of USD119bn globally, whereas only USD13.7bn flowed to support methane abatement in 2021-2022. Debt instruments accounted for USD7.9bn (57%), while equity instruments contributed USD5.5bn (40%).²⁹

Dedicated debt instruments for methane abatement are still relatively scarce in the market. While existing green finance instruments may support economic activities with methane abatement potential or co-benefits, methane-related outcomes are not explicitly disclosed as part of environmental performance reporting. A comparison of the Climate Bonds Green Bond Database and the methane-related activities identified in section 2.1 above shows that green bonds issued domestically that may involve methane abatement are mainly concentrated in natural gas pipeline construction. However, the bond disclosures do not specify the expected methane reduction outcomes, making it difficult to determine the scale of financial instruments truly targeting methane abatement.

With the publication of the MFWG Guidance (Box 2), oil and gas companies have the potential to tap into the GSS+ market for their methane abatement efforts. They may consider aggregating abatement projects or embed methane abatement in their broader decarbonisation strategy to seek financial support.

The following section will analyse four types of financial instruments that support financing in key sectors: traditional debt, use-of-proceeds debt, private credit, and KPI-linked instruments (see Table 5).

Figure 3. Global methane abatement funding and annual need (2030 and 2050)



Source: Climate Policy Initiative (CPI)³⁰

Table 6. Comparison of financing instruments for methane reduction in the oil and gas industry

Oil and gas		Traditional bonds, loans, project finance	GSS labelled use-of-proceeds bonds, loans, project financing	Private credit, direct lending	KPI-linked bonds, loans, credit instruments
Issuers	Advantages	Less restrictive. Access to large quantities of funds with no spending limits.	Access to large quantities of funds with the potential to reduce the cost of capital. Attracts more investors.	Private negotiations between counterparties. More flexible use of funds. Low disclosure requirements.	Signalling the climate transition to investment institutions. Unlimited expenditure. Unrestricted use of proceeds.
	Disadvantages	Providers of climate-oriented capital are increasingly reluctant to finance oil and gas companies, especially those without climate commitments.	Additional workload and costs in terms of issuance, verification, and disclosure of information. Lack of definitions for abatement technology.	Providers of climate-oriented capital are increasingly reluctant to finance oil and gas companies, especially those without climate commitments.	Borrowing rates increase if targets are not met.
	Current market participation	Common	Rare/negligible in the oil and gas sector	Common	Rare/negligible in the oil and gas sector
Investors	Advantages	More liquid investment.	Easy to manage the flow of funds. More liquid investment.	Target results	Commitments of financier entities related to the climate transition.
	Disadvantages	Financial business as usual. No targets, no earmarked funding.	Potential risk of greenwashing and, in some cases, increasing the carbon footprint of the portfolio.	Lack of transparency and earmarked funding. Poor mobility (higher climate risk).	Potential risk of greenwashing and, in some cases, increasing the carbon footprint of the portfolio.

Source: Climate Bonds Initiative

Box 3. Carbon finance and carbon markets

China's much-anticipated carbon market consists of two main components: the national emissions trading system (ETS) that is the mandatory carbon market, and the China certified emission reduction (CCER) voluntary market, along with several regional pilot schemes.

The national ETS began trading on 16 July 2021, initially covering power generation, expanding to include steel, cement, and aluminium smelting industries in 2025, followed by chemicals, petrochemicals, civil aviation, and paper in 2027. The market will gradually transition from fully free allowances to a mix of free and paid ones. While CO₂, CF₄, and C₂F₄ are included, methane is not yet covered. As of August 2025, the cumulative trading volume reached 696 million tonnes, valued at CNY48bn, with an average price of CNY 68.9/tonne.³¹

The CCER market was relaunched in January 2024, after being suspended in 2017. It serves as a key voluntary offset mechanism for China's national ETS, allowing entities to use CCER credits to offset up to 5% of their emissions. By scientifically quantifying carbon emission reductions from low-carbon projects, the CCER market converts these reductions into tradable economic benefits. This facilitates the trading of emission reductions, enhancing the economic viability of projects. While the market has the potential to diversify financing for methane abatement initiatives, financing volumes remain low.³² Approximately 43 million tonnes of CCERs were used for compliance, generating more than CNY2.1bn in revenue for CCER project developers.³³ Emphasising additionality of projects, CCER only supports those that are close to being commercially viable and which otherwise would not have happened with a little push.

Coalbed methane, as the major industrial source of methane in China, is increasingly regulated. The updated standard prohibits emissions in two situations: (1) the gas extracted has a high methane concentration (meaning methane concentration is equal to or greater than 30%); or (2) the gas extracted has a methane concentration of 8% or more and the pure quantity of gas drainage is equal or more to 10m³/min.³⁴ The compulsory requirement will push coal mines to recover what would have been emitted under the previous regulation.

The Ministry of Ecology and Environment (MEE) released the CCER methodology (CCER-10-001-V01) for the utilisation of low-concentration coalbed methane (less than 8%) in coal mines in 2024. The methodology aims to standardise the development of related projects and the accounting of emission reduction, and to incentivise companies to participate in methane emission reduction actions on their own initiative. Gas with a concentration of less than 8% cannot easily be burned by internal combustion engines for direct power generation, and the investment cost of flameless oxidation technology, a new technology for treating low-concentration gas, is relatively high. The introduction of the coal mine CCER methodology can help mobilise capital for low-concentration gas treatment and utilisation technologies.³⁵ However, these technologies are not net zero, as the utilisation and combustion of the gas still releases CO₂, even with reductions from CCUS.

The MEE also published CCER methodologies for methane in the oil and gas sector regarding the recycling of oilfield-associated gas onshore and offshore (CCER-10-002-V01, CCER-10-004-V01), as well as test venting gas (CCER 10-003-V01).³⁶ The rationale is to encourage recycling of associated gas that would otherwise have been flared. Annual emission reduction of current recycling projects for offshore oilfield-associated gas is estimated at 250,000 tonnes CO₂ with the potential to increase to 1 million tonnes in 2030.³⁷

Methane abatement in agriculture is another potential source of tradable carbon credits. Prior to the CCER programme's suspension in 2017, approved methodologies included crop residue reuse, enteric fermentation mitigation, conservation tillage, and biogas generation from manure management. While agricultural methane abatement methodologies have yet to be reinstated, continued CCER development is expected to unlock new opportunities, enabling agricultural enterprises to monetise carbon credits and diversify funding channels through carbon finance.³⁸

Controversies may arise when awarding carbon credits to avoided emissions as compared to carbon sequestration. While converting methane to CO₂ significantly decreases the warming impact, it is not climate neutral as CO₂ is still emitted. The full lifecycle of methane in these activities requires further examination to evaluate their ultimate climate mitigation impact.

The Climate investment and financing pilot

China's climate investment and financing pilot, led by the MEE, aims to test policies and standards that mobilise financing for climate mitigation and adaptation at the municipal level. The first group, launched in 2022, includes 23 pilot cities and provinces.

A key component of these pilots is the development of climate investment and financing project databases, which offer policy-based guidance to direct capital toward projects with positive climate impacts. Eligible projects, according to MEE criteria, include those focused on non-energy GHG emissions control, such as methane abatement, process-related carbon reduction, hydrofluorocarbon (HFC) control, and waste and wastewater management.

In 2022, the MEE issued a circular to guide and promote more funds to be invested in the field of climate change mitigation and adaptation.³⁹ The reference standards for climate finance project entry include reducing methane fugitive emissions, reducing carbon emissions in production processes, controlling HFCs, and the treatment and disposal of waste and wastewater.

Projects included in the climate finance project databases will be eligible for local financial support such as rewards and subsidies, with the potential to access green lending, and green and transition finance bonds easily, in addition to obtaining credits from CCER markets that publish the sectoral criteria related to the project.

2.3 Innovative financing support for methane abatement

A growing set of demonstration projects is showcasing that viable pathways for financial support can be found. This section presents case studies on technologies spanning rice paddies, low-emission livestock production, gas pipeline leak reduction, and methane detection. These showcase a range of financing instruments, including sovereign loans, green credit, carbon revenue mechanisms, and early-stage equity investments, which provide insights for financial institutions seeking to expand engagement in methane abatement.

Despite these encouraging developments, methane remains underrepresented in the green and transition finance ecosystem. There is not yet a GSS+ bond or a commercial bank green loan that explicitly claims its use of proceeds supports methane abatement activities or measures the abatement impact through financing. As explored further in Section 3 on recommendations, scaling up financing requires better policy coordination, technical standards, incentive mechanisms, and data infrastructure to improve the bankability of methane projects and build a robust financing ecosystem.

Case study 1. World Bank loan for methane reduction and water savings in Hunan's rice paddies⁴⁰

In 2023, the World Bank provided a USD255m loan to support a methane-reducing and water-saving paddy rice programme in Hunan. This programme aims to reduce methane emissions, improve irrigation and drainage services, and provide agricultural support for climate-resilient rice production in Hunan province, China's largest rice production area.

The programme is anchored in the government's Hunan high standard farmland construction programme (HSFCP), which seeks to reduce methane emissions while also improving the climate resilience of rice production. It aims to strengthen the provincial government's management system for sustainable and low-methane paddy rice production.

The programme also aims to contribute to climate change mitigation and to build the necessary skills and knowledge base so that similar projects can be replicated in China and other rice-growing countries globally.

Programme financing over five years is expected to be USD1.24bn, of which USD988m will be financed by the Chinese government and the USD255m World Bank International Bank for Reconstruction and Development loan.

*Notes from Climate Bonds: While this rice methane-abatement loan may not be immediately replicable through commercial financing, it plays an important role in laying the groundwork for future scale. By generating real-world data on costs, performance, and MRV, the programme equips local regulators and practitioners with valuable insights that are currently lacking. These lessons can inform the development of more standardised project models in similar government initiatives.

Similarly, China's development financial institutions (DFIs), such as China Development Bank and the Agricultural Development Bank of China, can play a crucial role in accelerating methane abatement by offering concessional green loans, which improve access to finance and help de-risk early-stage projects.

Note: Case studies 1 and 2 are kindly provided by the International Finance Corporation (IFC). Comments with an asterisk (*) added by Climate Bonds do not represent the official view of IFC.

Case study 2. World Bank loan supports sustainable fodder production and lower methane emissions for China's livestock industry⁴¹

Gansu's livestock sector is an important driver of the province's economy but also a major contributor to rising GHG emissions.

To address this, the World Bank provided a USD200m (EUR186.5m) loan in June 2024 to support the Sustainable Fodder Production and Low Methane Livestock Development Program-for-Results (PforR).

The PforR aims to enhance productivity, reduce methane and other GHG emissions, and improve climate resilience in Gansu's livestock sector, primarily by introducing low-emission technologies and practices to local farms, focusing on improving animal health, promoting sustainable fodder production, and enhancing the collection, treatment, and recycling of livestock manure. These efforts will not only boost productivity but also strengthen the sector's overall climate resilience.

*Notes from Climate Bonds: As demand for animal protein rises in China, major dairy and beef companies have increasing influence over livestock production practices. These corporates can use their purchasing power, certification schemes, and supplier programmes to drive large-scale methane abatement. By embedding low-emission requirements in contracts, co-investing in training and manure management, or using strong credit profiles to attract low-cost financing, they can address barriers among smallholders. These supply-chain-driven strategies, alongside public funding, will help create sustained, market-driven demand for low-methane livestock production. More broadly, developing an MRV system, technical standards, and an incentive framework, along with expanded green certification in livestock value chains, will help scale low-emission technologies in China and the global market.

Note: Case studies 1 and 2 are kindly provided by the International Finance Corporation (IFC). Comments with an asterisk (*) added by Climate Bonds do not represent the official view of IFC.

Case study 3. Asian Development Bank loan for urban gas pipeline upgrades to reduce GHG emissions⁴²

Rapid urbanisation and rising energy demand, particularly for heating, have increased methane leakage risks in China's urban gas networks. Upgrading these systems could reduce GHG emissions by at least 190,000 tCO₂e annually.

In April 2025, the Asian Development Bank signed a USD125m loan agreement with Henan Tianlun Gas Group Co., Ltd. to rehabilitate ageing gas transmission and distribution infrastructure in five provinces, including Henan and Hebei. The project covers installation of smart gas meters and digital sensors for at least 500,000 households, which aims to enable real-time monitoring, automatic shut-off in the case of leaks, and instant alerts to control centres, enhancing both safety and efficiency.

The financing qualifies under the 2019 Green Industry Guiding Catalogue and the 2024 Green and Low-Carbon Transition Industry Guiding Catalogue and has been certified as green credit by China's United Equator Environmental Assessment Co., Ltd. This case study provides a replicable model for financing methane control in the gas sector.

Since 2022, China has undertaken a large-scale renovation and upgrade of its urban gas pipeline networks, making the integration of methane abatement measures both timely and cost-effective.⁴³ Embedding leak detection, smart metering, and digital monitoring into these upgrades can simultaneously cut methane losses and enhance operational safety. As LDAR-related activities are now recognised across multiple green taxonomies, commercial green financing is well positioned to help scale their deployment.

Case study 4. OGCI China Climate Investments' strategic investment in a methane leak-monitoring technology firm

OGCI China Climate Investments (CCI) is a fund focusing on decarbonising hard-to-abate sectors including energy, industry, buildings, and transportation. It was jointly established by China National Petroleum Corporation (CNPC), OGCI Climate Investments, and the Hainan Free Trade Zone Development Equity Investment Fund, with CNPC Climate Venture Capital Co., Ltd. serving as the general partner and fund manager. Its core investment priorities including CO₂ reduction, methane abatement, and carbon capture, utilisation, and storage (CCUS).

In October 2024, the fund completed a strategic investment in Ningbo Oiler Technology Co., Ltd., a company specialising in intelligent and visualised gas monitoring technologies, which develops real-time automatic detection, source tracing, and quantification solutions for methane leaks, aiming to enhance the efficiency of methane and other carbon-based gas emission detection and management in industrial scenarios.

This case study highlights how diversified financial instruments can support the R&D and commercialisation of methane-abatement technologies. However, fully realising this potential requires more patient, risk-tolerant capital and flexible financing structures for technology start-ups, as many are still in the early commercialisation stages with long payback periods.

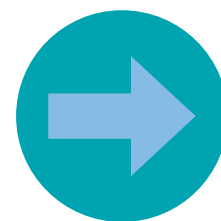
Additionally, oil and gas companies need clearer policy guidance to allocate budgets or capital expenditures for deploying such technologies. Strengthening both sides of the ecosystem, innovation financing and industry commitment, can accelerate market uptake.

While current investments in methane reduction are concentrated among multilateral institutions and a few climate-focused funds, broader participation from diverse institutions through debt, equity, and blended finance mechanisms is needed to scale up methane abatement finance.

Despite its climate importance, methane reduction has not received sufficient attention in national policies or commercial financial products. The scale of financing, maturity of mechanisms, and market awareness require significant improvement. Methane mitigation should be seen as low-hanging fruit within green and transition finance, leveraging existing instruments such as green agriculture loans and transition bonds.

Enterprises should integrate methane reduction into their climate governance and strategic planning, with a clear mitigation roadmap to attract climate-conscious investors. To mobilise broader financial support, collaboration across policy, standard-setting, incentives, and data infrastructure is essential. Enhancing the bankability of methane-related projects will be critical to building a robust methane finance ecosystem.

3. Conclusion and recommendations



China has made significant progress in developing its methane abatement policy framework, including its first inclusion in the NDC update for 2025. However, methane could be more effectively integrated into the broader mitigation agenda with specific, quantitative targets. While high-level policies and actions have been introduced at both national and subnational levels, the absence of detailed policies, technical standards, incentives, and reliable data continues to limit market participation and dampen investment interest.

To accelerate finance for methane abatement and support China's NDC target of reducing GHG emissions by 7-10% by 2035, methane must be prioritised alongside CO₂ as a major GHG. Achieving this requires setting clear, methane-specific targets and guidance, as well as defining abatement criteria in relevant taxonomies and standards.

Improving data quality through enhanced reporting and digital infrastructure is essential. In addition, establishing best practices for coal mine closure is crucial to prevent emissions from abandoned mines. Introducing innovative financial products, as well as targeted incentives and disincentives, such as including methane in China's Emissions Trading System (ETS), will further stimulate investment.

Finally, FIs have an important role to play too. Integrating methane abatement as a core priority within China's green and transition finance agenda is essential to drive market engagement and ensuring the necessary finance flows.

Key recommendations for policymakers:

Develop methane-specific climate targets

While China's *Methane Emissions Control Action Plan* does include a set of quantitative targets in the critical sectors of energy, agriculture, and waste (see Box 1), key objectives around emission or intensity limits remain qualitative in nature. As China's broader decarbonisation policy shifts focus from seeking to cap energy consumption to managing carbon emissions, integrating methane into policy design via sector-specific and economy-wide, quantitative targets and pathways is a crucial step to accelerate abatement efforts. Specifically, the MEE should coordinate across ministries to set national quantitative targets in the upcoming 15th Five-Year Plan and future NDCs. Ideally, these targets should be broken down by region and sector, and for major state-owned enterprises or industrial firms. This would ensure accountability and enable regulators to design targeted incentives and penalties, signalling long-term policy direction. Denmark's agricultural emissions targets, which support mechanisms such as livestock levies and green transition funds, demonstrate how target-setting can drive coordinated policy action and boost investment in mitigation solutions.⁴⁴

In addition, within the Chinese energy sector, the coverage of existing emissions standards could be extended from extraction to cover the whole supply chain as well as include low-methane concentration coal mines.⁴⁵ For example, the oil and gas emission standard currently allows flaring if gas is 'not feasible or difficult to recycle', while the coal emissions policy allows utilisation or combustion of captured emissions, but this is not aligned with international best practices. Strengthening standards and emissions requirements to ban all routine flaring would help to guide emissions reduction.

Another step China could take to bolster its methane targets would be to consider becoming a signatory of the Global Methane Pledge (GMP), which is a voluntary framework supporting nations to collectively achieve a 30% reduction in methane emissions from 2020 levels by 2030 (see Appendix 2). It currently counts 160 participant countries.⁴⁶ However, despite being a major methane emitter, China has not yet joined. Doing so could send a clear policy signal on China's commitment to methane abatement.

Elaborate clear methane abatement criteria in taxonomy and standards

As set out in Section 2.2, China's recently consolidated Green Finance Endorsed Project Catalogue includes methane abatement but provides limited technical detail, leaving FIs unclear on eligible activities and technologies. Ministries including the PBOC, MEE, and NDRC can jointly incorporate a fuller set of methane-abatement activities into national taxonomies, including manure management, AWD in rice cultivation, waste minimisation, and biogas production. These should include clear screening criteria, performance thresholds, and align with international standards, such as the Climate Bonds Agriculture Production and Waste Management Criteria. This would improve comparability and enable confident methane-related financing.⁴⁷

Measurement, reporting, and verification (MRV) requirements and data sharing

While the *Methane Emissions Control Action Plan* identifies MRV as one of its four priorities (see Box 1), detailed implementation plans and standardised methodologies are still under development. The MEE can collaborate with other ministries to integrate methane emissions into national reporting requirements for high-emitting sectors using unified methodologies, setting the foundation for voluntary and eventually mandatory inclusion in carbon markets. A clear, step-by-step approach with well-defined timelines, mirroring the approach of the 2024 EU Methane Regulation, which moves from information provision in 2025 to MRV requirements and minimum detection limits, would give corporates policy

certainty and preparation time.⁴⁸ The CSRC and stock exchanges could also consider mandating methane emissions reporting and transition planning for listed companies in critical sectors.

Enhancing data-sharing infrastructure through centralised databases, satellite monitoring, and digital reporting systems would reduce due diligence costs. Once the regulatory framework matures, municipal green finance platforms that have already consolidated emission and pollution data can incorporate methane data to facilitate local financing initiatives.

Incentives for abatement technologies

Although China has a range of green finance incentives in place, most do not target methane abatement. However, the existing incentives can be adapted to support methane-related activities. For example, The Ministry of Finance, PBOC, and local regulators could introduce fiscal and monetary incentives, such as tax relief, subsidies, preferential relending, and credit enhancements for methane-abatement technologies and green public procurement. Sectoral regulators could expedite approvals and recognise demonstration projects and pilots at the local level to boost market visibility.

Inclusion of methane emissions in the national ETS

The inclusion of methane in China's national ETS would be an important step forward in driving abatement in those sectors covered by the ETS. As set out in Box 3, while other non-CO₂ GHGs are currently covered, methane is not. Expanding coverage to include methane could help exert regulatory pressure on the main methane emitting sectors, including electricity and petrochemicals. While the OECD estimates that only 4% of non-CO₂ GHGs face any form of carbon price (carbon taxes, ETS, fuel excise taxes), Brazil, as a high-emitting country, is in the process of developing an ETS that covers methane, showing that progress here is possible.^{49,50}

Inclusion of methane in the ETS would be an opportunity for China to demonstrate global leadership, as very few regimes currently include methane. Expanding the ETS to cover more sectors would not only ensure it meaningfully includes methane by including high methane-emitting sectors, but also help encourage economy-wide decarbonisation.

Set coal mine closure procedures to ensure best practice

China is the largest source of abandoned facility emissions globally, which account for 10% of energy sector emissions in China.⁵¹ Specifically, for coalbed methane, the MEE could work with other relevant ministries to strengthen emission standards for mine closures. While regulations have been strengthened for active coalmines, as set out in Box 3, non-operational mines present a gap.

Policies like those addressing orphan wells in Alberta, Canada, or Germany could serve as useful precedents. In Alberta, the energy regulator sets an industry-wide minimum spend for closure activities and imposes an annual orphan well levy on oil and gas operators to cover orphan well and mine closure costs (as set out in Appendix 1). Similarly, Germany incentivises abandoned mine methane projects by offering a guaranteed

fixed payback tariff for electricity produced from these sites over 20 years.⁵² Introducing similar measures in China would help curb emissions from non-operational mines and ensure best practices in coal mine closure.

Key recommendations for financial institutions (FIs):

Methane is less understood by Chinese FIs when compared to CO₂, with most lacking the capacity to assess abatement potential or identify viable projects. There is also no mandate to prioritise methane in portfolio management or client engagement. As a result, commercial transactions are mostly limited to multilateral development bank (MDB) cases. Sectors such as agriculture, waste, and energy face challenges including fragmented projects, small ticket sizes, and complex technologies, which increase transaction costs and complicate deal structuring.

Building a business case

FIs have yet to widely recognise methane abatement as a distinct investment opportunity, often viewing it as a niche or peripheral environmental issue. Banks and investors should actively engage with research to deepen their understanding of methane and assess how methane exposure in their current portfolios could pose transition risks under tightening domestic policies. Developing this understanding is crucial for identifying new lending and investment opportunities, managing long-term risks, and preparing for evolving regulatory and market expectations.

Target setting and transition planning

Despite a much-discussed transition finance agenda, methane abatement remains largely absent from FI transition planning, which is predominantly focused on CO₂. FIs should set science-based methane abatement targets alongside their CO₂ commitments, which would help guide portfolio alignment, shape sector engagement priorities, and direct capital toward high-impact activities. By explicitly integrating methane into transition plans, institutions can better support clients in reducing non-CO₂ emissions and contribute more effectively to national decarbonisation goals.

Diversify finance through product innovation

Market activity in methane abatement finance remains limited, with most transactions concentrated in MDBs and minimal private sector involvement. Both policy and commercial banks have an opportunity to integrate methane-related activities into their transition frameworks by aligning with domestic and international taxonomies. In addition to use-of-proceeds and KPI-linked products, institutions can explore thematic equity funds focused on high-impact areas such as biogas, low-emission rice and livestock, and advanced monitoring technologies. DFIs, such as China Development Bank and the Agricultural Development Bank of China, can play a catalytic role by offering concessional capital to early-stage projects and creating risk-sharing mechanisms to crowd in commercial investment.

Appendix 1. Methane-related policies and measures from selected GMP signatories

Jurisdiction	Policy initiatives	Sectors	Examples of measures
EU	Regulation (EU) 2024/1787 of the European Parliament and of the Council of 13 June 2024 on the reduction of methane emissions in the energy sector and amending Regulation (EU) 2019/942	Energy	<p>Measurement, Reporting and Verification (MRV): requires energy sector operators to improve the independence and transparency of methane emissions data by adopting a standardised methodology for regular measurement, reporting, and requiring third-party verification of methane emissions.</p> <p>Oil and gas industry: leak detection and repair (LDAR), which requires operators to regularly inspect equipment to detect and repair methane leaks in a timely manner and reduce unintentional emissions.</p> <p>Coal mines: requires countries to establish an inventory of abandoned mines and install emission measurement devices. It also prohibits the venting and flaring of related equipment from 1 January 2030, unless there are technical infeasibilities or safety risks.</p> <p>Transparency of methane emissions from imported energy sources: requires fossil energy importers to disclose information on exporters' methane emissions measurement, reporting, and abatement measures. Establish a methane supply index, a transparency database, and a global methane monitoring tool to provide information on methane emissions to enable importers to make informed decisions.</p>
	EU Methane Strategy (issued in 2020) ⁵³	Energy, agriculture, waste	<p>One of the priorities is to improve the measurement and reporting of methane emissions.</p> <p>Energy sector: will have an obligation to improve the detection and repair of leaks in gas infrastructure.</p> <p>Agriculture sector: the strategy focuses on improving methane data collection and exploring best practices for methane-reducing technologies, animal diets, and breeding management.</p> <p>Waste sector: the commission will improve the management of landfill gas to reduce emissions</p>
Australia	Nationally determined contribution (NDC) includes strategies to reduce methane emissions by incentivising investment (published in 2025) ⁵⁴	Coal, agriculture	<p>Coal: the Resources Methane Abatement Fund and Powering the Regions Fund have awarded over AUD41.2m to develop and demonstrate technologies to cut methane emissions from Australia's coal industry.</p> <p>Agriculture: the government is investing AUD29m to fund research and development of methane-reducing feed additives and forage legumes for livestock, and AUD87m over 10 years to establish the Zero Net Emissions Agriculture Cooperative Research Centre.</p>
Brazil	National Zero Methane Program (launched in 2022) ^{55,56}	Energy use of solid urban and agricultural waste through biogas and biomethane.	<p>Tax breaks for infrastructure for biogas and biomethane projects.</p> <p>Credit and financing: implementation of biodigesters, purification systems.</p> <p>Methane credit mechanism: through the carbon market, methane emission reduction projects can earn carbon credits and generate additional revenue, increasing the viability of projects that cannot break even.</p>
	Brazilian sustainable taxonomy (2025) ^{57,58}	All	<p>Reduce methane from livestock farming: (i) implementation of biodigesters to capture and use the biogas and biofertilisers generated by manure, reducing methane emissions; and (ii) use of feed additives that reduce enteric methane production in ruminants.</p>

Jurisdiction	Policy initiatives	Sectors	Examples of measures
Canada	Faster and Further: Canada's Methane strategy (2022) sets out the national plan to reduce methane emission by over 35% by 2030 ⁵⁹	Oil and gas, landfills, agriculture, coal mining, residential building and transportation.	<p>Mitigation actions target methane sources such as oil and gas, landfills, agriculture, coal mining, residential building, and transportation. Enhanced monitoring and reporting of methane emissions from the three major emitting sectors.</p> <p>Oil and Gas Emissions Reduction Fund to invest in green technologies to reduce or eliminate methane and other GHGs from the oil and gas industry.</p> <p>Developing waste regulations to increase recovery and destruction of methane from large municipal solid waste landfills by about 50% by 2030 from 2019 levels.</p> <p>Funding for agricultural methane reduction: On-Farm Climate Action Fund (OFCAF) will provide CAD670m to support immediate on-farm action to tackle climate change, including through actions to reduce methane emissions. The Agricultural Clean Technology Program (ACT) is a CAD495.7m program that aims to support the development and adoption of clean technologies in agriculture.</p> <p>Phase out coal-fired power generation in Canada by 2030; lead the global phase-out of coal power; and ban the export of power coal from Canada by 2030.</p>
	Alberta: Inventory Reduction Program and orphan well levy. Since 2002, the Orphan Well Association has managed well closure. ⁶⁰	Oil and gas	<p>Orphan well closure: the Alberta energy regulator sets an industry-wide minimum spend on closure activities to ensure licensees are focused on closure operations. The requirement is then divided between each oil and gas operator.</p> <p>Levy for well closure: the Regulator also imposes an annual orphan well levy on each oil and gas operator to offset closure costs of orphaned wells and mines.⁶¹</p>
United States of America	U.S. Methane Emission Reduction Action Plan (2022) ^{62,63,64} Note: Implementation has been altered and delayed in certain areas (though included here as an illustration of what is possible).	Oil and gas, abandoned coal mines, landfills, agriculture, and other areas such as industry and buildings.	<p>Oil and gas: the Environmental Protection Agency (EPA) proposed emission guidelines and updated source performance standards for new and existing oil and gas facilities, which aimed to reduce methane emissions by about 75%. Plans included enhanced testing and remediation requirements for existing equipment and phasing in zero-emission technologies. The Department of the Interior focused on reducing methane emissions on publicly owned lands and waters, by requiring oil and gas operators to pay royalties on gas which is vented or flared, and requiring that wells are properly plugged (i.e., preventing leaks and contamination from abandoned sites). The Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) passed legislation to enhance pipeline safety and reduce pipeline leaks and methane emissions.</p> <p>Landfills: EPA established new standards under the Clean Air Act that would have required require large landfills to install gas collection and control systems to reduce methane emissions. Upgraded the Landfill Methane Outreach Program (LMOP) to help landfills capture methane gas and convert it to renewable energy sources.</p> <p>Agriculture: The Department of Agriculture (USDA), through its Climate Smart Agriculture program, encouraged farmers and ranchers to implement measures to reduce methane emissions, such as alternative manure management systems and the use of anaerobic digesters.</p> <p>Abandoned coal mines: The Department of the Interior provided funding through the Infrastructure Investment and Jobs Act to rehabilitate abandoned coal mines and reduce their methane emissions.</p>
	Inflation Reduction Act (2022) ⁶⁵ Now on hold following administration change.	All	The methane emissions fee was originally designed to begin at USD900 per ton of methane in 2024, increase to USD1,200 in 2025, USD1,500 in 2026, and remain at USD1,500 thereafter.

Appendix 2: Methane-related international initiatives and standards

Jurisdiction	Examples of measures
Global Methane Pledge	<ul style="list-style-type: none"> • During COP26 in 2021, the European Union and the United States launched the Global Methane Pledge (GMP). Signatories commit to at least a 30% collective reduction in methane emissions by 2030 (compared to 2020 levels). • The GMP aims to reduce methane emissions to reduce GHG concentrations and focuses on the areas of agriculture, energy (including oil and gas), and waste disposal.⁶⁶ • China has yet to sign the Pledge
United Nations Framework Convention on Climate Change (UNFCCC) and COP meetings	<ul style="list-style-type: none"> • Under the United Nations Framework Convention on Climate Change (UNFCCC), the issue of methane emission reductions is often an important part of the discussion on GHG emission reductions at the Conferences of the Parties (COPs).⁶⁷ • At meetings such as COP26 and COP27, countries announced and discussed additional initiatives on methane emission reductions, such as the Energy Crisis Accelerated Action on Methane Emission Reductions in the Energy Sector.
Climate Bonds Initiative (Climate Bonds)	<ul style="list-style-type: none"> • Climate Bonds focus on ensuring a robust green bond market. Methane emission reduction projects can be financed through green bonds. • The Climate Bonds Standard (CBS) covers projects that support renewable energy and reduce GHG emissions, including projects related to reducing methane emissions.
International Energy Agency (IEA)	<ul style="list-style-type: none"> • The IEA has released several reports and guides designed to help countries and energy companies reduce methane emissions. The Global Methane Tracker report provides up-to-date estimates of methane emissions from the energy sector and opportunities to reduce them.⁶⁸ In addition, the report <i>Reducing Methane Leaks in the Oil and Gas Industry</i> was released, detailing best practices for reducing methane emissions from the industry. • The IEA highlights the oil and gas industry's key role in reducing methane leakage and provides practical pathways and technologies to reduce emissions, including replacing high-emitting equipment, installing emission control devices, implementing leak detection and repair (LDAR) programmes, and adopting emerging technologies.
International Oil and Gas Methane Partnership 2.0 (OGMP 2.0)	<ul style="list-style-type: none"> • OGMP 2.0 (Oil and Gas Methane Partnership 2.0) is a voluntary framework led by the United Nations Environment Program (UNEP) to improve the accuracy and transparency of methane emissions reporting in the oil and gas industry. Through OGMP 2.0, oil and gas companies can report their methane emissions and take steps to reduce them. • OGMP 2.0 drives emissions reductions by improving the accuracy and transparency of methane emissions reporting in the oil and gas industry through a standardised approach to monitoring, reporting, and verification.⁶⁹ • Companies representing 42% of oil and gas production report under OGMP2.0, and 91 of 140 achieved Gold Standard reporting in 2024.
International Methane Emissions Observatory, 2021 ⁷⁰	<ul style="list-style-type: none"> • Core implementer of the Global Methane Pledge. • UNEP public dataset of empirically verified methane emissions to enable methane reductions, raising awareness and capacity of governments for methane abatement. • Reporting framework: Oil & Gas Methane Partnership 2.0 (OGMP2.0).⁷¹ • Satellite detection: Methane Alert and Response System (MARS)⁷² has detected 1,200 methane plumes, only 1% notifications received a substantive response.⁷³

Jurisdiction	Examples of measures
Global Methane Initiative (GMI)	<ul style="list-style-type: none"> • GMI is an international public-private initiative to promote cost-effective, short-term methane emission reductions and the recovery and use of methane as a clean energy source in these areas: agriculture, coal mining, municipal waste, oil and gas systems, and wastewater. • The initiative reduces information, institutional, and other market barriers to project development through the development of tools and resources, training and capacity-building, technology demonstration, and direct project support. • 49 partner countries accounting for 75% global methane emissions receive technical and policy support for mitigation.⁷⁴
Zero Routine Flaring Initiative, 2015 ⁷⁵	<ul style="list-style-type: none"> • Commits governments and oil companies to eliminate routine flaring by 2030. Also commit to reporting on oilfield flaring. • Routine flaring is targeted through commitments to improved gas utilisation infrastructure and regulatory frameworks. • Endorsed by 36 governments, 15 DFIs, and 60 oil companies accounting for 60% of global flaring. • In 2023, only 41% of governments and 61% of oil companies reported.⁷⁶ • 2024 satellite data showed a surge in global flaring to 151bcm, the highest level since 2007.
Global Flaring and Methane Reduction Partnership, 2023 ⁷⁷	<ul style="list-style-type: none"> • Multi-donor trust fund totalling USD234m. • Provides developing country governments and SOEs with grants, technical assistance, policy advice, capital mobilisation for methane abatement efforts such as MRV systems, policy and regulation development, and specific methane abatement projects.⁷⁸
Aiming for Zero Initiative, 2022. ⁷⁹	<ul style="list-style-type: none"> • Launched by the Oil and Gas Climate Initiative (OGCI), a CEO-led initiative comprising 12 oil and gas companies, targeting net-zero upstream emissions at their own operations. • Signatories aim to achieve a collective average target for upstream operations of 0.25% by 2025. • Endorsed by nearly 100 companies and organisations.⁸⁰ • Does not address downstream (scope 3) emissions or fossil fuel phase-out.
Oil and Gas Decarbonisation Charter, 2023 ⁸¹	<ul style="list-style-type: none"> • Charter signatories aim for net zero scope 1 and 2 operational emissions by 2050 and near-zero upstream methane emissions by 2030. • High-level commitment which includes pledges to improve transparency, adopt best practices, and invest in methane abatement technologies. • 33 NOCs, 23 IOCs, accounting for 39% of oil and gas production. • No reporting on progress to date. • Does not address fossil fuel phase-out.
Reducing Agricultural Methane Programme (RAMP), 2023-2025 ⁸²	<ul style="list-style-type: none"> • Funded by the Global Methane Hub and the U.S. State Department. • Supports methane mitigation in agriculture by: <ul style="list-style-type: none"> • - Assisting 15 countries in mainstreaming Global Methane Pledge objectives into their NDCs. • - Providing project preparation support to at least 10 countries. • - Sharing best practices and knowledge programmes, leveraging USD200 from IFAD and other sources for every USD1, to a total of USD900m.
Lowering Organic Waste Methane (LOW-Methane) Initiative ⁸³	<ul style="list-style-type: none"> • Coalition aiming to cut 1 million tonnes of methane annually from the solid waste sector before 2030, mobilising up to USD10bn in investment. • Works with 40+ jurisdictions to develop methane abatement portfolios and access financing.

Appendix 3: China's Subnational Regulations on Methane Abatement

Province-level region	Policy document title	Year	Key sectors and abatement measures	Policy measures proposed
Guangdong Province	Guangdong Province Methane Emissions Control Work Plan ⁸⁴	2024	<ul style="list-style-type: none"> Waste and wastewater treatment Agriculture (crop cultivation, livestock and poultry farming) Energy sector (renewable energy substitution, methane reduction from oil and gas systems) 	<ul style="list-style-type: none"> Inclusion into eco-environment oriented development project databases (inclusion in EOD project databases will qualify methane abatement projects for municipal subsidies and recommendations by governments to financial institutions, thus providing financing opportunities.) Methane reduction subsidies for rice cultivation and livestock farming <p><i>High level measures proposed include:</i></p> <ul style="list-style-type: none"> Exploring the usage of carbon markets or inclusive carbon mechanisms Exploring the usage of voluntary GHG emissions trading Encourage methane abatement projects to access climate investment and financing
Shanxi Province	Implementation Plan for Promoting Methane Emissions Control Actions ⁸⁵	2024	<ul style="list-style-type: none"> Energy sector (coal mine methane) Agriculture (livestock and poultry farming) Waste and wastewater treatment 	<ul style="list-style-type: none"> EOD projects (see above) Methane reduction subsidy policies Climate investment and financing Voluntary GHG emissions trading
Hubei Province	Hubei Province Methane Emissions Control Action Plan ⁸⁶	2024	<ul style="list-style-type: none"> Agriculture (crop cultivation, livestock and poultry farming) Waste and wastewater treatment Energy (methane control in oil and gas, coal mines, and shale gas exploration) 	<ul style="list-style-type: none"> Green and low-carbon development fund Encourage commercial financial institutions, banks, securities, insurance, and funds, to invest in methane emissions control project construction <p><i>(Note: detail on the implementation tools by which to do so was not provided in the policy document)</i></p> <ul style="list-style-type: none"> Encourage venture capital funds, private equity funds, trust funds, etc., to invest in methane abatement <p><i>(Note: detail on the implementation tools by which to do so was not provided in the policy document)</i></p> <ul style="list-style-type: none"> Support research, including methodologies for calculating methane emission reductions Invest in a set of Hubei-specific, high-impact methane utilisation and reduction projects Voluntary GHG emissions trading mechanism Inclusion into EOD and climate investment project databases (see above)

Province-level region	Policy document title	Year	Key sectors and abatement measures	Policy measures proposed
Ningxia Hui Autonomous Region	Ningxia Methane Emissions Control Implementation Plan ⁸⁷	2024	<ul style="list-style-type: none"> • Energy sector (coal mine methane, oil and gas) • Agriculture (livestock and poultry farming, crop cultivation) • Waste and wastewater treatment 	<ul style="list-style-type: none"> • Methane reduction subsidy policies for ruminant livestock farming • Voluntary greenhouse gas emissions trading mechanism • Carbon-inclusive mechanisms (i.e., providing monetary incentives for methane emission reducing behaviour by SMEs and individuals) • Climate investment and financing
Tianjin Municipality	Tianjin Methane Emissions Control Action Plan ⁸⁸	2024	<ul style="list-style-type: none"> • Energy (oil and gas) • Agriculture (livestock and poultry farming, crop cultivation) • Waste and wastewater treatment 	<ul style="list-style-type: none"> • Inclusion into EOD project databases (see above) • Climate investment and financing • Methane reduction subsidies for ruminant livestock farming and rice cultivation
Yunnan Province	Yunnan Methane Emissions Control Implementation Plan ⁸⁹	2024	<ul style="list-style-type: none"> • Agriculture (crop cultivation, livestock and poultry farming) • Waste and wastewater treatment • Energy (methane control in oil and gas, coal mines, and shale gas exploration) 	<ul style="list-style-type: none"> • Inclusion into EOD project databases (see above) • Methane reduction subsidies for major ruminant farming and rice cultivation areas • Voluntary GHG emissions trading mechanism
Liaoning Province	Liaoning Methane Emissions Control Implementation Plan ⁹⁰	2024	<ul style="list-style-type: none"> • Energy (coal mine methane) • Agriculture (livestock and poultry farming, crop cultivation) • Waste and wastewater treatment 	<ul style="list-style-type: none"> • Inclusion into EOD project databases (see above) • Methane reduction subsidies for ruminant livestock farming • Voluntary GHG emissions trading mechanism
Hunan Province	Hunan Methane Emissions Control Implementation Plan ⁹¹	2025	<ul style="list-style-type: none"> • Energy (coal mine methane) • Agriculture (livestock and poultry farming, crop cultivation) • Waste and wastewater treatment 	<ul style="list-style-type: none"> • Extend existing subsidies to cover methane emissions control • EOD project development (see above)

Source: compiled by Climate Bonds Initiative from China Carbon Neutrality Tracker⁹²

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