

## Citi's Energy & Power Sector Framework

Energy powers our lives. Providing clean, reliable and affordable energy is one of the world's most critical development challenges. For our clients, from Base of the Pyramid consumers to Small and Medium Enterprises (SMEs) and large industry customers, energy is critical to robust economic growth and a key component of sustainable development.

### *The Framework and its Purpose*

The purpose of Citi's Energy & Power Sector Framework is to outline Citi's vision, values, and principles governing energy and power financing and to

- Integrate sustainability into business strategy,
- Improve risk management, and
- Provide a platform to disseminate knowledge and learning.

### *Our Vision and Values*

As a global financial institution active in all markets around the world, and a long-time global leader in energy and power finance, Citi understands that energy policy is a function of government-led initiatives and free-market forces that shape capital flows. In this context, it is our role to define the parameters under which we will engage with clients while effectively managing risk.

In the context of ensuring a sustainable energy future, Citi embraces the following principles:

- Meeting global energy demand requires a balanced approach that includes conventional and unconventional fossil fuels, as well as low carbon energy such as renewables and nuclear power;
- The important issues of climate change and sustainable energy will translate into growing acceptance of low- and zero-carbon technology; and
- As the energy mix shifts, risk management approaches must also evolve to address emerging risks.

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*Our vision: To be a global leader in advancing energy solutions that are economically sound and environmentally and socially responsible.*

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*Linkages & Tradeoffs between Energy & Power Sectors*

Citi recognizes that energy and power sectors are interlinked and energy choices require tradeoffs that are complex and dependent on many factors including economic growth, associated infrastructure, changes in fuel markets, rapidly rising construction costs, climate legislation, electricity market conditions, and technological upgrades.

Each country is on a unique development journey. World energy growth over the next twenty years is expected to be dominated by emerging economies such as China, India, Russia, Brazil and others. The energy mix is expected to shift geographically with coal power declining in OECD countries and potentially increasing in China and India.

Citi recognizes that new risks and opportunities will continue to emerge as the global energy mix shifts. Emerging risks and opportunities require new ways of thinking and an adaptive approach to risk management.

The following Sector Briefs include an overview of Citi's existing risk management approach and key issues for consideration in each sector. They also include a summary of Citi's engagement and leadership on sustainability issues within each sector. The Sector Briefs are intended to complement Citi's internal Environmental and Social Risk Management (ESRM) Policy which provides detailed policies and procedures for each sector.

## **Renewable Power & Energy Efficiency**

### Overview & Objectives

As concerns over carbon levels in the atmosphere and related impacts of climate change grow, so does support for low carbon, clean energy sources. Renewable energy capacity has risen to 19.3%<sup>1</sup> of the energy mix, and current global investment in *new* renewable energy projects exceeds investment in new fossil fuel fired power plants.

These alternative energy sources include wind, solar, geothermal and biomass power generation as well as newer approaches such as fuel cells, and next generation biofuels. Additionally, investments in energy efficiency improvements are considered an energy “source” by reducing demand and freeing up additional capacity of the existing power grid. While these renewable sources provide climate benefits, they are not without environmental risks and trade-offs, such as the large land requirements for large scale solar and wind farms, correlated increasing food prices associated with biofuels, and seismic concerns with some geothermal developments.

Citi’s Alternative Energy team has already achieved meaningful success in financing large-scale wind farms and solar projects, as well as distributed rooftop solar. Citi is also a recognized leader in energy efficiency market development and thought leadership. In addition to these established competencies, we will continue to position ourselves to support emerging alternative energy technologies as they become commercially viable and deployed at scale.

Under this Energy & Power Sector Roadmap, our objectives in renewables and energy efficiency are two-fold:

- To leverage our existing institutional knowledge to develop a strategy that protects Citi from emerging risks while positioning us as a leader;
- Help catalyze the energy efficiency finance market, to establish it as a new asset class, and to be a market leader with respect to both finance solutions and thought leadership.

### Scope & Links to Policy

Citi’s Environmental and Social Risk Management (ESRM) Policy covers transactions for renewables and energy efficiency when proceeds are directed toward a specific asset or business. For new projects or expansion of existing projects, an Environmental and Social Impact Assessment is required. In emerging markets, projects must comply with

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<sup>1</sup> REN21 Renewables Global Status Report (2015)

the IFC Performance Standards and, when relevant Environmental, Health and Safety Guidelines on Wind Energy and Geothermal Power Generation.

These transactions also count towards Citi's \$100 Billion environmental finance goal. Mobilization of funds in support of this initiative is reported on annually in the Citi Citizenship Report.

### Key Sector Issues

For clients in renewable power sectors, Citi will consider the following issues in accordance with the ESRM Policy:

- **Siting** - identification of proper siting for renewable projects is key; for example, wind farms need to be located outside of key bird migratory zones, and geothermal projects should not be located in areas of high seismic activity.
- **Land use and land acquisition** – related to siting is land use, both existing land use and potential alternative land uses, and inclusive of ecological and social land uses; especially in attempts to deploy renewables at scale such as large scale wind farms or concentrating solar plants, land use and land acquisition processes must be considered.
- **Technology** – how tested is the energy technology? How experienced and credit worthy is the particular manufacturer of the technology?
- **Weather risk** – many renewable technologies depend on the weather for the volume of energy produced – has the client conducted proper studies?
- **Legal and regulatory framework** – the host country legal and regulatory framework will be considered, including any renewables and energy efficiency incentives, and criteria for qualifying for those incentives.
- **Other environmental and social risks** – in accordance with Citi's ESRM Policy, transactions will be reviewed to identify environmental and social risks associated with new construction or expansion.

### Stakeholder Engagement

We engage regularly with stakeholder groups around renewable energy and energy efficiency finance. As a recognized leader in the development of energy efficiency markets, Citi works with partners such as C40 Cities, Ceres, Environmental Defense Fund, and others to develop and implement ways to unlock, catalyze and scale the market for energy efficiency, including the retrofitting of buildings.

## **Hydropower**

### Overview & Objectives

Among other benefits such as flood control and irrigation, hydro-electric power plays an important role in providing low carbon electricity in many countries. However, the costs and benefits of hydropower often trigger intense debate. Plants range widely from small run-of-river projects with little environmental or social impact to multi-billion large-scale dams with captive reservoirs that have the potential to displace thousands of affected people, alter river flow and affect downstream communities and fisheries.

Under this Energy & Power Sector Roadmap, our objectives in the hydropower sector are two-fold:

- To leverage our existing institutional knowledge to develop a strategy that protects Citi from emerging risks while positioning us as a leader;
- To ensure that Citi's approach to hydropower is consistent and balanced across regions and businesses.

### Scope & Links to Policy

Transactions within the hydropower sector are subject to Citi's ESRM Policy, including the Equator Principles and underlying IFC Performance Standards, if appropriate, and will also be evaluated using the International Hydropower Association (IHA) Sustainability Assessment Protocol. The Protocol is a series of tools developed by the International Hydropower Association (IHA) in 2010 as a result of increasing requirements for a low carbon economy, energy security and improved water management and to advance sustainable hydropower.

Citi's Environmental and Social Risk Management (ESRM) Policy covers currently triggers transactions in the hydropower sector when proceeds are directed toward a specific asset or business. We also review transactions in the Capital Markets where clients may have a large minority or majority of hydro-electric power in their portfolio.

### Key Sector Issues

For clients in the hydropower sector, Citi will consider the following issues in accordance with the ESRM Policy:

- **Siting and Design and Safety** – siting and design options, including the dam, power house, reservoir, and associated infrastructure, are optimized to provide opportunities for multiple use benefits, utilize developed river systems where possible, minimize the area flooded per unit of energy (GWh) produced, and minimize population displacement; large dams should have robust independent safety reviews by qualified experts in accordance with ICOLD standards;

- **EPC Contractor and Construction Risk** - Data related to cost performance has showed that large dams often have the potential for significant cost overruns;
- **Biodiversity** – potential impacts to critical habitat must be mitigated in accordance with the mitigation hierarchy (avoid, minimize/reduce, restore, and offset) to ensure a net positive gain in biodiversity over a reasonable period of time;
- **Involuntary Resettlement, Displacement & Livelihoods Restoration** – The scale and extent of economic and physical displacement of people, (including downstream users such as fishermen), by the project will be considered, and Resettlement Plans and processes must provide compensation to affected people for loss of assets at replacement cost as well as improve the livelihoods and standards of living of displaced people;
- **Community and Stakeholder Engagement and Participation** – Proactive community engagement processes should be designed to ensure affected communities and stakeholders are able to participate throughout the Project cycle (from feasibility studies and project planning through to construction and operations); consultation and engagement should be iterative, transparent (information has been disclosed proactively and readily available), and participatory processes incorporated for projects with high environmental and social impacts.
- **Indigenous Peoples** – when indigenous peoples are affected by a project in an emerging markets country, application of IFC Performance Standard 7 (“Indigenous Peoples”) is required. For transactions, in High Income OECD countries, Citi considers the special rights, protections and status of indigenous peoples as an especially vulnerable group in accordance with host-country legislation.
- **In-Migration** – Construction of large scale dams may open up “in-migration pathways” that create project-induced migration and ‘rapid influx’ of people seeking employment or other economic opportunities, sometimes in a ‘boom and bust’ cycle. Risks to existing communities (e.g., health impacts) related to in-migration should be assessed and managed proactively perhaps through Influx Management Plans.
- **Legal and regulatory framework** – the host country legal and regulatory framework will be considered;
- **Other environmental and social risks** – in accordance with Citi’s ESRM Policy, transactions will be reviewed to identify environmental, social and safety risks associated with new construction or expansion.

### Stakeholder Engagement

Citi participated in the multi-stakeholder Hydropower Sustainability Assessment Forum led by the IHA with participation from governments (China, Zambia, Norway, Iceland, and Germany), industry (IHA and Hydro Tasmania), NGOs (WWF, Oxfam, The Nature Conservancy, and Transparency International), and financial institutions (World Bank

and Citi). The outcome of the 2-year process was the Hydropower Sustainability Assessment Protocol, an assessment tool that measures and guides performance through all phases of the project cycle (e.g. early stage, planning, implementation, and operation). See <http://www.hydrosustainability.org>.

The Protocol has been endorsed by the IHA, tested by many leading hydropower companies, and represents good practice for the sector. It was developed as a tool to assess compliance with the IFC Performance Standards and World Commission on Dams. Citi views the Protocol as a useful tool for evaluating transactions in the hydropower sector to ensure compliance with the ESRM Policy.

## **Nuclear Power**

### Overview & Objectives

Events at Fukushima Daiichi raised questions about the role of nuclear power in Europe and Japan, although it has not changed policies elsewhere<sup>2</sup>. According to the U.S. Energy Information Administration, significant expansion of nuclear power is projected to continue, more than quadrupling from 2010 to 2035, particularly in China, India, and Russia. This comes at a time when some of the largest nuclear powers are phasing out and/or decreasing their reliance on nuclear power including France, Japan and Germany.

The nuclear industry provides many benefits to countries that choose to develop nuclear power plants, including economic development, baseload energy, and reduced greenhouse gas emissions. We believe the nuclear industry has an important role to play in transitioning to a low carbon world economy, and Citi aims to positively affect the overall sustainability of the operations of our clients.

Under this Energy & Power Sector Roadmap, our objectives in the nuclear sector are two-fold:

- To leverage our existing institutional knowledge to develop a strategy that protects Citi from emerging risks while positioning us as a leader in the nuclear sector;
- To ensure that Citi's approach to nuclear power is consistent and balanced across regions and businesses.

### Scope & Links to Policy

Since 2006, Citi has adhered to a Nuclear Power Sector Standard, which is part of Citi's broader Environmental and Social Risk Management (ESRM) Policy. This sector standard applies to all transactions involving new construction of nuclear facilities, or the upgrading or expansion of existing nuclear facilities, and requires adherence to national laws and regulations in high income OECD countries and International Atomic Energy Agency (IAEA) standards in emerging markets.

### Key Sector Issues

Citi recognizes the complexities involved in the responsible management of nuclear power, and supports the industry subject to essential requirements being met regarding safety, security, non-proliferation, and capacity of all parties – host country regulators, project sponsors and suppliers – to manage environmental and social risks.

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<sup>2</sup>World Energy Outlook (2012) <http://www.worldenergyoutlook.org/>



For clients in the nuclear power sector, Citi will consider the following issues in accordance with the ESRM Policy:

- **Technology** – for new plants, Citi will consider reactor design, including the economics, safety systems, cooling systems, maintenance and refueling processes, and performance track record or status of licensing, including countries where the reactor is proposed or under construction;
- **Capacity of project sponsors and suppliers** – the capacity of companies in charge of design, construction, and/or operation of the nuclear island will be evaluated with regards to safety, security, environmental management, and operational track record;
- **Siting and exposure to seismic risk** – the location of the nuclear power plant will be evaluated in accordance with IAEA Safety Standards for siting of nuclear installations ([http://www-pub.iaea.org/MTCD/publications/PDF/Pub1177\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1177_web.pdf)) to ensure the protection of the public and the environment from the radiological consequences of radioactive releases due to accidents.
- **Legal and regulatory framework** – the host country legal and regulatory framework will be considered, including the host country’s nuclear governance and regulatory oversight;
- **Other environmental and social risks** – in accordance with Citi’s Nuclear Sector Standard, transactions will be reviewed to identify environmental, social and safety risks associated with new construction or expansion.

### Stakeholder Engagement

Citi participated in workshops held by the International Framework for Nuclear Energy Cooperation, a group chaired by the US DOE Department of Nuclear Energy. Citi views stakeholder engagement as an important aspect of leadership in the nuclear sector.

## **Thermal Power**

### Overview & Objectives

Citi supports a balanced approach to meet the world's electricity needs while reducing environmental and social impacts. To achieve this balance, Citi promotes and develops renewable energy and energy efficiency projects alongside our support for conventional thermal power. Meeting the world's energy needs equitably will require a diversified energy mix that includes coal-fired power as well as natural gas.

Many developing countries face increasing energy demands to supply some of the world's one billion people living without electricity<sup>3</sup>. Coal fired power is often significantly cheaper for providing base load electricity generation than any other fuel source. For reasons of cost and reliability, any transition to a low-carbon economy will not happen overnight. As a global institution serving emerging markets, Citi recognizes the need to respond to tradeoffs where justified.

Under this Energy & Power Sector Roadmap, Citi's objectives in the thermal power sector are two-fold:

- For new projects, drive financing of higher efficiency thermal power projects globally;
- To ensure that Citi's approach to thermal power is consistent and balanced across regions and businesses.

### Scope & Links to Policy

We undertake a rigorous analysis of the carbon emissions of GHG intensive sectors, including thermal power. For direct financing of new plants in emerging markets this analysis includes: application of [IFC Performance Standards](#) and [World Bank/IFC Environmental Health and Safety Guidelines for Thermal Power](#) and a gap analysis against host country approval requirements. Rated energy efficiency of new plants must be within the top quartile (25%) of the country average for the same fuel type and power plant size. The client must also undertake a robust alternatives analysis on the type of combustion technology proposed.

### Key Sector Issues

For clients in the thermal power sector, Citi will consider the following issues in accordance with the ESRM Policy:

- **Use of Best Appropriate Technology** – For new projects or new units in existing plants, clients must demonstrate the use of Best Appropriate Technology for the

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<sup>3</sup>Annual Energy Outlook (2012) [http://205.254.135.7/forecasts/aeo/pdf/0383\(2012\).pdf](http://205.254.135.7/forecasts/aeo/pdf/0383(2012).pdf)

selected fuel source (i.e. economically and technologically feasible option to achieve the best environmental outcome). For energy efficiency, projects should aim to be in the top quartile of the country average for the same fuel type and power plant size.

- **Water availability** – As a key input requirement for thermal power, the long-term availability of water, and the competing interests of other users, will be considered.
- **Air emissions** - While the focus of environmental advocates is on greenhouse gas emissions, other air emissions such as particulate matter, NO<sub>x</sub>, and SO<sub>x</sub> that lead to human health impacts must be reduced to the extent that is technologically and economically feasible.
- **Transmission lines and other associated facilities** – The risks and impacts of transmission lines and other associated facilities, which may or may not be part of the financing, must be assessed in the due diligence process.
- **Health risks and impacts** – The impact of hazardous air pollutants on air quality and human health will be assessed.
- **Legal and regulatory framework** – The host country legal and regulatory framework will be considered, including regulatory risks related to potential climate legislation.
- **Other environmental and social risks** – In accordance with Citi's ESRM Standard, transactions will be reviewed to identify environmental and social risks associated with new construction or expansion.

### Stakeholder Engagement

Citi is an active participant in the Equator Principles Climate Change Working Group, which aims to promote a common approach to climate change mitigation. Topics include energy efficiency performance, alternatives analysis, assessment of climate impacts and adaptation measures, and greenhouse gas reporting.

## **Conventional Oil & Gas**

### Overview & Objectives

Following the blowout in 2010 of BP's Macondo well in the Gulf of Mexico, scrutiny on frontier exploration and production has increased.

Under this Energy & Power Sector Roadmap, our objectives in the conventional oil & gas sector are two-fold:

- Stay abreast of emerging risks and opportunities in conventional oil & gas as companies move into frontier areas.

Ensure that Citi's approach to conventional oil & gas is consistent and balanced across regions and businesses. Scope & Links to Policy

Citi's Environmental and Social Risk Management (ESRM) Policy covers transactions in the oil & gas sector when proceeds are directed toward a specific asset or business, or for any client active in shale oil and gas or oil sands (see relevant sections below). For new projects or expansion of existing projects, an Environmental and Social Impact Assessment is required. This includes upstream exploration and production, midstream pipelines, and downstream refineries liquefied natural gas (LNG) plants and terminals. We conduct environmental and social due diligence to categorize the project risks and address risks present in the transaction with the client and through environmental and social action plans when gaps in current management plans are present.

### Key Sector Issues

For clients in the conventional oil & gas sector, Citi will consider the following issues in accordance with the ESRM Policy:

- **Challenging Technical Conditions** – Frontier exploration and production is, by definition, in remote environments with often harsh conditions. There is a greater reliance on technology and increased uncertainty regarding performance. Citi will evaluate the experience and operational track record of a company in a specific environment; examples of frontier exploration and production include deep water and ultra-deep water exploration and production as well as Arctic exploration and production;
- **Capacity of project sponsors and contractors** – the capacity of companies in charge of drilling and/or operation of oil & gas facilities will be evaluated with regards to safety, security, environmental management, and operational track record;
- **Contractor selection and oversight** – Citi will evaluate third party risks associated with selection and oversight of contractors, as well as the ability of the company to

manage these risks through selection criteria, terms and conditions in the contracts, audits of contractor safety and environmental management systems, etc;

- **Legal and regulatory framework** – with increased regulatory scrutiny of drilling in frontier areas such as deepwater and the Arctic, Citi will evaluate the risk of delays in permitting and licensing and the potential for legal challenges;
- **Corruption** - Does the company have a strong culture of integrity? Is there a policy addressing bribery, corruption and facilitation payments? How are employees and contractors trained on the policies? Does the company conduct appropriate due diligence on the owners of shell companies?
- **Other environmental and social risks** – in accordance with Citi’s ESRM Standard, transactions will be reviewed to identify environmental and social risks associated with conventional oil & gas. Given the linear nature of pipelines, enhanced due diligence is conducted to determine if any Areas of High Caution are triggered, especially any resettlement, Indigenous Peoples impacts, or sensitive habitat impacts.

### Stakeholder Engagement

Citi has been engaged with the International Petroleum Industry Environmental Conservation Association (IPIECA) and its member companies on various topics over the years, including human rights, biodiversity, and climate change. Citi was a founding member of the Cross-Sector Biodiversity Initiative (CSBI), a partnership between IPIECA, the International Council on Minerals and Mining (ICMM), and the Equator Principles Association, that aims to develop and promote a common approach to assessing and managing biodiversity risks and impacts.

## Shale Oil & Gas

### Overview & Objectives

Shale is an important source of both oil and natural gas and plays an important role in satisfying energy demand within North America and beyond. However, it is vitally important that this strategic resource be developed in a safe, transparent and environmentally and socially responsible manner.

Under this Energy & Power Sector Roadmap, our objectives in shale oil & gas are two-fold:

- Drive financing of clients who demonstrate sustainability by embracing new technology and emerging best practices that reduce environmental and social risks and impacts.
- To ensure that Citi's approach to shale oil & gas is consistent and balanced across regions and businesses.

### Scope & Links to Policy

Citi's ESRM Policy includes a specific Shale Risk Review Process for any client with unconventional oil & gas operations in shale formations. This process is intended to encourage a dialogue between Citi and its clients on the material environmental and social risks associated with shale oil & gas production, and enables Citi to develop a better understanding of prevailing industry practice and our clients' performance. A Citi portfolio-based benchmark is used to evaluate new clients.

### Key Sector Issues

For clients in the shale oil & gas sector, Citi will consider the following issues:

- **Methane and operation emissions** – Methane emissions from shale operations have a global warming impact much greater than CO<sub>2</sub>. Citi will consider the company's approach to controlling fugitive emissions and potential leakage of methane from the well as small pockets of gas are encountered during initial exploration (e.g. use of 'green completion' technology);
- **Water management and disposal** – Citi will consider the company's approach to reuse and recycling of flow-back water and produced water;
- **Capacity and track record of the operator and its contractors** – the capacity of companies in charge of drilling, hydraulic fracturing, fluids management, etc. will be evaluated with regards to safety and environmental management;
- **Community engagement** – the company's policy and procedures for engaging with communities and responding to grievances and concerns will be evaluated;

- **Transparency** – Citi will consider the company’s level of disclosure related to use of hydraulic fracturing chemicals and key performance indicators for environmental, health and safety;
- **Legal and regulatory framework** – the host country legal and regulatory framework will be considered;
- **Other environmental and social risks** – in accordance with Citi’s ESRM Policy, transactions will be reviewed to identify environmental and social risks associated with existing operations or new construction and expansion.

#### Stakeholder Engagement

Citi has an internal Shale Regulatory Briefing that has been circulated periodically since 2010. We have also been involved in dialogue with stakeholders (NGOs, clients, academics, and banks active in the sector) on the environmental and social risks and impacts of the shale sector since 2011.

## **Oil Sands**

### Overview & Objectives

Meeting the world's energy needs will require diversified energy mix, including both conventional and unconventional oil & gas resources. Oil sands development in Canada has specific environmental and social risks that need to be identified, mitigated and managed.

Under this Energy & Power Sector Roadmap, our objectives in the oil sands sector are two-fold:

- Drive financing of clients who demonstrate sustainability by embracing new technology and emerging best practices that reduce environmental and social risks and impacts.
- To ensure that Citi's approach to the oil sands is consistent and balanced across regions and businesses.

### Scope & Links to Policy

Citi's ESRM Policy includes a specific Oil Sands Risk Review Process that applies to any client with oil sands operations. This process is intended to encourage a dialogue between Citi and its clients on the material environmental and social risks associated with oil sands production, and it enables Citi to develop a better understanding of prevailing industry practice and our clients' performance. A Citi portfolio-based benchmark is used to evaluate new clients.

### Key Sector Issues

For clients in the oil sands sector, Citi will consider the following issues:

- **Energy & Greenhouse Gas Emissions** – the methods of extraction and processing of oil sands bitumen vary in energy and greenhouse gas intensity, and Citi will consider the company's approach to reducing greenhouse gases across its portfolio;
- **Waste management and tailings** – for mining operations, a company's compliance with reclamation requirements under Directive 074 will be evaluated, along with the estimated costs of reclamation or Asset Retirement Obligations.
- **Water consumption** – as a key input requirement for in-situ operations, the long-term availability of water, and the competing interests of other users, will be considered;
- **Biodiversity impacts** – a company's approach to managing cumulative effects to wildlife habitat will be evaluated;



- **Engagement with First Nations** – a company’s engagement strategy with First Nations, including existing Benefit Sharing Agreements and/or past and future hearings, will be considered;
- **Other environmental and social risks** – in accordance with Citi’s ESRM Policy, transactions will be reviewed to identify environmental and social risks associated with new construction or expansion.

#### Stakeholder Engagement

Citi has been involved in dialogue with stakeholders (First Nations, NGOs, clients, the Alberta government, and banks active in the sector) on the environmental and social risks and impacts of the oil sands resource since 2009.