

Climate Regulation

In 17 jurisdictions worldwide

Contributing editor
Per Hemmer



2015

GETTING THE
DEAL THROUGH 

GETTING THE
DEAL THROUGH 

Climate Regulation 2015

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Main climate regulations, policies and authorities

1 International agreements

Do any international agreements or regulations on climate matters apply in your country?

India is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC), and the Kyoto Protocol to the UNFCCC. Emission reduction projects in India have achieved significant benefits under the Clean Development Mechanism (CDM) of the Kyoto Protocol. The CDM is essentially a flexibility mechanism that allows emission-reduction projects in Annex II (ie, developing countries such as India) to earn certified emission reductions (CERs), each equivalent to 1 tonne of carbon dioxide, by trading and selling these to Annex I (ie, developed) countries to meet a part of their emission reduction targets under the Protocol. CERs from CDM projects in India have been sold to compliance buyers in developed countries in the EU, Japan and Canada.

However, post-2012, the future for the CDM market for Indian projects is not as promising as earlier. First, countries like Canada, Japan and the Russian Federation have refused to undertake any greenhouse gas (GHG) emission reduction obligations under the second commitment period of the Kyoto Protocol after 2012. Second, the EU Emission Trading Scheme (ETS), which is the biggest market for credits under the CDM mechanism, will be closed for credits from CDM projects in India registered after 2012. This is because under Phase III of the EU ETS, credits from CDM projects registered after 2012 can be used in EU ETS only if they originate from a defined list of least developed countries (LDCs). Third, the price of credits from CDM projects in international carbon markets has fallen sharply in recent times.

2 International regulations and national regulatory policies

How are the regulatory policies of your country affected by international regulations on climate matters?

India's policy initiatives on climate change commenced around the same time that the Kyoto Protocol's first commitment period (2007–2012) commenced. The National Action Plan on Climate Change (NAPCC) was announced in June 2008, and this was followed by several other domestic policy initiatives (see question 3).

As a developing country, India does not have any binding emission reduction commitments under the Kyoto Protocol. As part of its non-binding commitments under the UNFCCC, the government of India has submitted a voluntary target for reduction of its emission intensity of its GDP by 20–25 per cent over 2005 levels by 2020 (not including emissions from agriculture).

3 Main national regulatory policies

Outline recent government policy on climate matters.

Some of the key domestic policy initiatives at the level of the central government are as follows:

- the NAPCC, approved and announced in June 2008, is the leading policy instrument that directs the way forward for achieving the emission reduction targets and formulation of climate change measures in India. The NAPCC has eight missions that address different issues such as sustainable agriculture, forestry, use of solar thermal and photovoltaic technology, enhanced energy efficiency, and so on.

Renewable energy (RE) and energy efficiency (EE) are key focus areas of the NAPCC, which are supported by several policies, legislations and institutional mechanisms both at the level of the central and state governments in India.

- there are eight sector-specific missions under the NAPCC, which include the National Solar Mission and the National Mission for Enhanced Energy Efficiency, which lay down specific objectives in relation to solar energy and energy efficiency respectively. The other missions pertain to water, sustainable habitat, sustainable agriculture, creation of a 'green India', strategic knowledge for climate change and a mission for sustaining the Himalayan ecosystem;
- a key component of governance in India is planning through 'five-year plans', which are developed, executed and monitored by the Planning Commission of India. Low carbon growth strategy is one of the pillars of India's 12th Five Year Plan (2012–17);
- a 'carbon tax' on coal has been levied to fund clean energy initiatives in India since 2010. The amounts collected are credited to the National Clean Energy Fund, for use in funding research, innovative projects in clean energy technologies and environmentally remedial programmes. The quantum of the tax has been increased from 50 rupees per tonne to 100 rupees per tonne pursuant to the union budget 2014 to 2015; and
- two market-based mechanisms have been put in place to spur RE and EE, namely Renewable Energy Certificates (RECs) and Energy Savings Certificates (ESCerts). RECs relate to purchase of RE power in different states to meet renewable purchase obligations, while ESCerts represent energy savings, and are issued pursuant to the provisions of the Perform, Achieve and Trade Scheme (PAT Scheme) notified under the Energy Conservation Act, 2001. These market-based mechanisms are the starting points for the development of the domestic market in India for climate change-related tradeable instruments.

4 Main national legislation

Identify the main national laws and regulations on climate matters.

The legislative framework for RE activities in India is provided by the Electricity Act, 2003. The three mechanisms for encouraging RE presently available are: Renewable Purchase Obligations (RPO); separate tariff for electricity generated from RE sources; and RECs. Each of these is discussed in greater detail in question 19.

With regard to energy efficiency, the principal legislation is the Energy Conservation Act, 2001, under which energy efficiency norms have been prescribed for certain energy intensive industries. The PAT Scheme has been notified by the central government in exercise of its powers under the Energy Conservation Act.

At present, there is no law that specifically deals with the regulation of emissions of GHGs in India. However, the Environment (Protection) Act, 1986 (EPA) and the Air (Prevention and Control of Pollution) Act, 1981 (Air Act) contain broad provisions that could support regulation of GHG emissions. The central government has notified the Environment (Protection) Rules, 1986, which specify the standards for emission or discharge of environmental pollutants from various industries, operations and processes.

The central government has also issued the Environmental Impact Assessment Notification, 2006 (EIA Notification) under the Environment Protection Act, which requires developers to obtain an environmental

clearance prior to undertaking identified projects and activities. The process of environmental clearance takes into account various aspects of impact on the environment, including pollution and obligations to contain the same.

5 National regulatory authorities

Identify the national regulatory authorities responsible for climate regulation and its implementation and administration. Outline their areas of competence.

The regulatory and implementing authorities at the national level are explained below.

Executive bodies

The Ministry of New and Renewable Energy (MNRE) is the nodal agency of the central government responsible for all matters relating to non-conventional and renewable energy.

The Bureau of Energy Efficiency (BEE) operating under the Ministry of Power spearheads energy efficiency efforts in the country.

The Ministry of Environment and Forests and Climate Change is in charge of implementing the Environment Protection Act. The nomenclature of the Ministry was changed in June 2014 from 'Ministry of Environment and Forests' to 'Ministry of Environment, Forests and Climate Change', signalling the government's intention to play a proactive role in international events related to the environment in the future. The Minister in charge of the Ministry described the change as a 'deep thought initiative taking into account contemporary trends related to issues pertaining to climate change'. A key function of the Ministry pertains to the granting of Environmental Clearances for industrial projects, and it has the power to specify standards relating to environmental pollution as part of such clearances. During May 2014, this Ministry launched a new system for online submission of applications for environmental clearance and introduced steps to reduce the time taken during each stage of the approval process.

Regulatory institutions

The Central Electricity Regulatory Commission (CERC) is responsible for specifying the norms for tariff determination from all sources of energy, including renewable energy. The CERC has specified principles for tariff determination from RE sources. There are state electricity regulatory commissions at the level of each state in India which implement the principles set forth by the CERC.

The Central Pollution Control Board under the Air Act specifies emission standards for identified air pollutants. There are state pollution control boards at the level of each state in India.

Financial institutions

The Indian Renewable Energy Development Agency (IREDA) functions as the financing arm of the MNRE and secures funds to lend to end-users, manufacturers and entrepreneurs.

The Rural Electrification Corporation Limited provides financial assistance to state electricity boards and state government departments for rural electrification projects that are sponsored by them.

Special structures for implementation

NTPC Vidyut Vyapar Nigam Ltd and the Solar Energy Corporation of India are government-owned entities with whom power purchase agreements are signed by developers under the National Solar Mission.

Energy Efficiency Service Ltd is the public sector company incorporated by four central public sector units for the purpose of helping to implement some aspects of the National Mission on Energy Efficiency.

Research centres

The Solar Energy Centre is a unit of the MNRE dedicated to the development of solar energy technologies.

The Centre for Wind Energy Technology is also a unit of the MNRE dedicated to research and development work in the wind energy sector.

General national climate matters

6 National emissions and limits

What are the main sources of emissions of greenhouse gases (or other regulated emissions) in your country and the quantities of emissions from those sources? Describe any limitation or reduction obligations. Do they apply to private parties in your country?

The Ministry of Environment and Forests (MoEF) estimated India's GHG emissions for the year 2007, in a report released in 2010. The salient features of this report are as follows:

- the total net GHG emissions from India in 2007 were 1,727.71 million tons of CO₂ equivalent of which CO₂ emissions were 1,221.76 million tons; CH₄ emissions were 20.56 million tons; and N₂O emissions were 0.24 million tons;
- GHG emissions from energy, industry, agriculture, and waste sectors constituted 58 per cent, 22 per cent, 17 per cent and 3 per cent of the net CO₂ eq emissions respectively;
- the energy sector emitted 1,100.06 million tons of CO₂ eq, of which 719.31 million tons of CO₂ eq were emitted from electricity generation and 142.04 million tons of CO₂ eq from the transport sector;
- the industry sector emitted 412.55 million tons of CO₂ eq;
- the land use, land-use change and forestry (LULUCF) sector was a net sink. It sequestered 177.03 million tons of CO₂; and
- India's per capita CO₂ eq emissions including LULUCF were 1.5 tons per capita in 2007.

Emission standards have been prescribed for specific industries and activities pursuant to the provisions of the EPA and the Air Act. Ambient air quality standards have also been prescribed. These standards are applicable to all undertakings (including private enterprises) falling within the ambit of the relevant notification. See questions 9 and 17 for further details.

7 National emission projects

Describe any major emission reduction projects implemented or to be implemented in your country. Describe any similar projects in other countries involving the participation of government authorities or private parties from your country.

India has been one of the most significant beneficiaries from the CDM framework under the UNFCCC. Information available from the National CDM Authority, government of India, indicates that up to 2012, 2,884 CDM projects from India have been registered, which have generated 722,947,040 CERs (up to 2012). Of these, an overwhelming majority of 2,266 projects pertain to energy industries (renewable and non-renewable sources), 241 projects pertain to manufacturing industries, 70 projects are in waste handling and disposal, 223 are in the energy demand sector and 13 pertain to the transportation sector.

Funds from the Global Environment Facility (GEF) funds for climate mitigation, or under other bilateral and multilateral funding institutions, delivered in the form of grants, have been used for financing technology demonstration and commercialisation in a wide range of sectors in India, such as setting up of solar plants, improving efficiency of coal-fired plants, demonstration and commercialisation projects in new technologies, etc.

Domestic climate sector

8 Domestic climate sector

Describe the main commercial aspects of the climate sector in your country, including any related government policies.

As mentioned in question 7, CDM projects constitute the dominant form of climate change activity in India. India had the second largest number of projects – 509 of the 2,238 total projects registered with the CDM Executive Board.

Over the past few years, the demand for professionals who understand the business of environment sustainability has been steadily growing. The demand is rising in businesses relating to green buildings, renewable energy, energy efficiency and carbon consultancies, and large companies that have launched green initiatives.

Several Indian companies have also voluntarily undertaken environmentally sustainable activities. Some other companies have reduced their energy consumption and increased employee productivity through green initiatives such as water recycling and construction of green buildings.

Indian companies have played an important role in increasing awareness of environment sustainability issues through activities like preparing technology transfer projects, conducting workshops and training, publications and knowledge-based websites. For example, one of India's largest private sector banks, ICICI Bank Ltd, has undertaken a 'Go Green Initiative' as part of its corporate social responsibility initiative, which reaches out to staff and customers. ICICI Foundation collaborates with and supports the Environmentally Sustainable Finance group at the Centre for Development Finance in Chennai to identify ways in which resources for growth can be more effectively channeled to support environmental sustainability.

Regulatory requirements for Indian companies in respect of renewable energy and energy efficiency have been summarised in question 9. Apart from these requirements, a recent development that is expected to enhance corporate initiatives in climate change activities is the newly enacted Companies Act, 2013 (which has replaced the earlier Companies Act, 1956). The new law requires every company meeting prescribed criteria of minimum net worth, turnover or profit, to constitute a corporate social responsibility committee, which will formulate a corporate social responsibility policy for the company. The activities that may be included by companies in their corporate social responsibility policies (listed in Schedule VII to the Companies Act, 2013) include those relating to ensuring environmental sustainability.

General emissions regulation

9 Regulation of emissions

Do any obligations for emission limitation, reduction or removal apply to your country and private parties in your country? If so, describe the main obligations.

As discussed above, as part of the post-Kyoto Protocol climate change related commitments under the UNFCCC, the government of India has submitted a voluntary, non-binding target for reduction of its emission intensity of its GDP by 20–25 per cent over the 2005 levels by 2020. At the domestic level, regulatory measures regarding emission reductions follow a mixture of mandatory and voluntary approaches, and these are described below.

The following regulatory measures are prevalent at the domestic level, and apply to both government and private sector entities:

- identified energy intensive industries (eg, iron and steel plants, cement plants and thermal power plants) have to comply with energy efficiency norms specified pursuant to the provisions of the Energy Conservation Act, 2001 (ECA);
- the PAT Scheme discussed in questions 3 and 4 has been notified by the central government in exercise of its powers under the ECA. The PAT Scheme is an innovative, market-based mechanism to promote energy efficiency in energy-intensive sectors, which allows notified industries that use more energy than stipulated to buy tradable energy-saving certificates from those using less energy. Under the PAT Scheme, energy consumption norms have been notified for eight industrial sectors: thermal power plants, cement, iron and steel, fertiliser, pulp and paper, textiles, chlor-alkali and aluminium;
- the EPA stipulates that no person carrying on any industry, operation or process shall discharge or emit any environmental pollutants in excess of such standards as may be prescribed. The Environment (Protection) Rules, notified under the EPA specify the standards for emission or discharge of environmental pollutants from various industries, operations and processes specified;
- the Air Act, provides that no person operating any industrial plant in any air pollution control area shall discharge any air pollutant in excess of the standards laid down by the State Pollution Control Board. Further, the Air Act empowers the state governments to declare any area within the state as air pollution control areas; and
- the National Ambient Air Quality Standards notified by the Central Pollution Control Board under the Air (Prevention and Control of Pollution) Act, 1981 specifies emission standards for identified pollutants.

Apart from the above, certain energy efficiency requirements have been made mandatory only for government entities. For example, it is mandatory for all new buildings built by the Central Public Works Department to comply with India's national rating system for green buildings for achieving energy efficiency. Also, the state governments of Haryana and national capital territory of Delhi have notified mandatory use of compact fluorescent lamps (CFLs) and solar water heaters in all government buildings. In addition, in Rajasthan, the state government has issued directions regarding efficient use of energy and its conservation, like mandatory use of energy efficient lamps and CFLs, as well as solar water heating systems, promotion of energy-efficient buildings design and energy-efficient air conditioners.

10 Emission permits or approvals

Are there any requirements for obtaining emission permits or approvals? If so, describe the main requirements.

As discussed in question 4, environment clearances (ECs) are required under the Environment Protection Act. A list of 39 industrial projects and activities has been specified that require EC before any construction work or preparation of land for project management is started. The purpose of the EC is to assess the impact of the planned project on the environment and people and to try to abate and minimise the same, and in the process it has the ability to address environmental emissions as well.

As discussed in question 9, under the Air Act, consent of the State Pollution Control Board is necessary for establishing and operating any industrial plant in an air pollution control area. While scrutinising the applications for setting up or operating of any industrial plants, the state boards have the power to impose any condition as a requirement for the grant of consent.

11 Oversight of emissions

How are emissions monitored, reported and verified?

Under the PAT Scheme discussed in questions 3, 4, 9 and 15, the central government has notified energy-intensive industries in eight sectors and prescribed energy consumption norms for 478 'designated consumers' (DCs) across these sectors. The DCs are required to report periodically on the steps taken by them for complying with the notified energy consumption norms. The PAT Rules establish an elaborate framework for monitoring, verification and compliance reporting by each of the DCs.

The EIA Notification also provides for monitoring after the granting of environmental clearances. It mandates submission of half-yearly compliance reports in respect of the conditions stipulated in the environmental clearance, and provides that all compliance reports are public documents that can be obtained by any person after making an application to the concerned authority.

Both the Environment Protection Act and the Air Act provide for several penal provisions in the event of failure to comply with their provisions.

Emission allowances (or similar emission instruments)

12 Regime

Is there an emission allowance regime (or similar regime) in your country? How does it operate?

There is no emission allowance regime in India.

13 Registration

Are there any emission allowance registries in your country? How are they administered?

There are no emission allowance registries in India.

14 Obtaining, possessing and using emission allowances

What are the requirements for obtaining emission allowances? How are allowances held, cancelled, surrendered and transferred?

As outlined above, there is no regime for emission allowances.

Trading of emission allowances (or similar emission instruments)

15 Emission allowances trading

What emission trading systems or schemes are applied in your country?

Since there is no emission allowance regime in India, there is no scheme for trading in emission allowances. However, there are two significant market-based mechanisms that allow limited trading in the renewable energy space and in respect of energy efficiency. These are RECs and ESCerts. RECs relate to the purchase of RE power in different states to meet renewable purchase obligations as required under regulations issued by state electricity regulatory commissions, while ESCerts represent energy savings, and are issued pursuant to the provisions of the PAT Scheme notified under the ECA. These market-based mechanisms are starting points for development of the domestic market in India for climate change-related tradeable instruments. These mechanisms, discussed in our responses to questions 4 and 9, are described in some more detail below.

Renewable Energy Certificates (RECs)

REC Regulations

The CERC notified the regulations providing for implementation of the REC framework in 2010, namely the CERC (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 were notified on 14 January 2010 and amended vide amendments in September 2010 and July 2013 (collectively, the REC Regulations). These REC Regulations are applicable throughout India except the states of Jammu and Kashmir.

The institutional mechanism for implementation of RECs comprises of: the National Load Despatch Centre, which has been designated as the 'central agency' by CERC for issuance of detailed procedure for registration and issuance of RECs; and state agencies designated by state electricity regulatory commissions for accreditation and recommendation of eligible entities to whom RECs can be issued by the central agency.

One REC represents 1MWh of electricity that is generated from renewable sources and is injected into the grid. Entities engaged in generation of electricity based on RE sources, and to whom RECs are issued in accordance with the REC Regulations, are termed 'eligible entities'. The eligible entities sell the RECs to 'obligated entities', which include distribution licensees, open access consumers and captive power plant consumers that have to purchase the RECs to enable them to meet their RPO. (For details on RPO, please see question 19.)

The National Tariff Policy recognises RECs as a desirable mechanism to enable purchase of RE power in different states in similar proportions.

In order to ensure there is no duplication of benefits, a project will not be eligible to obtain RECs if it has a power purchase agreement for the capacity related to such generation to sell electricity at preferential tariff, determined by the appropriate commission (CERC or any SERC).

Types of RECs

The REC Regulations provide for two types of RECs: solar and non-solar. Solar RECs will be issued to eligible entities for generation of electricity based on solar power, and non-solar RECs will be issued for generation of electricity based on renewable energy sources other than solar.

Trading of RECs

Trading in RECs can be done through power exchanges or in any other manner as permitted by the order of the CERC. Presently, there are two power exchanges in India, namely the India Energy Exchange (IEX) and the Power Exchange India Limited (PXIL). The power exchanges are responsible for price discovery of the price of RECs. The CERC determines through regulations the floor price and forbearance price for solar and non-solar RECs, based on consultations with the central agency and forum of regulators. 'Floor price' is the minimum price determined by the CERC in accordance with these regulations at and above which the RECs can be dealt in the power exchange and 'forbearance price' is the ceiling price.

Enforcement issues

The enforcement of RPOs by various SERCs has so far been weak, and this has a direct impact on the market for RECs since the demand for RECs is essentially driven by RPOs. However, recently there has been an increase in orders being passed by SERCs for RPO enforcement. For example, the Uttarakhand Electricity Regulatory Commission imposed a penalty of 20,000 rupees on the managing director of Uttarakhand Power Corporation Limited for non-compliance with its RPO obligations and directed the utility to satisfy the pending procurement target by 31 March 2014. It further noted that failure to do so will attract additional penalty of 2,000 rupees per day thereafter. In another instance, the Joint Electricity Regulatory Commission (JERC) for Union Territories and Goa through a suo-motu order (dated 27 December 2013) directed all obligated entities to comply with RPO targets of financial year 2011 to financial year 2014 by 31 March 2014 and submit a detailed report by 17 April 2014. Later, in the order dated 5 May 2014, the JERC examined the status of compliance with the RPO obligations and issued further direction for immediate compliance, failing which it would be constrained to impose penalties. Also, the CERC on 9 June 2014 issued guidelines directing the Central Agency to adhere to guidelines with regard to actions to be taken against the RE generators on the basis of the audit observations of compliance auditors. Such measures are expected to provide some impetus to the REC market as well.

PAT Scheme

The PAT Scheme allows notified industries that use more energy than stipulated, to buy tradable energy saving certificates from those using less energy. The PAT Scheme is being implemented in exercise of the central government's power under the Energy Conservation Act, 2001 to notify energy intensive industries as 'designated consumers' (DCs) and to prescribe energy consumption norms for such DCs. The identification of DCs is based on background work by the Bureau of Energy Efficiency that establishes baseline energy consumption norms, and methodology for target-setting for each sector. Presently, energy consumption norms and standards have been notified for 478 DCs from the following eight industrial sectors: thermal power plants, cement, iron and steel, fertiliser, pulp and paper, textiles, chlor-alkali and aluminium. Recent reports suggest that BEE is planning to add more DCs across the iron and steel, textile, cement and paper and pulp sectors.

The PAT Scheme became operational on 30 March 2012 with the notification of the Energy Conservation (Energy Consumption Norms and Standards for Designated Consumers, Form, Time within which, and Manner of Preparation and Implementation of Scheme, Procedure for Issue of Energy Savings Certificate and Value of Per Metric Ton of Oil Equivalent of Energy Consumed) Rules, 2012 (PAT Rules) by the Ministry of Power, government of India under the Energy Conservation Act, 2001. The PAT Rules contain detailed procedures regarding establishment of energy consumption norms for the DCs. The energy consumption norms are notified by the central government for the DCs after considering the report and recommendations of the BEE. The DCs are required to comply with the prescribed energy efficiency standards within three years.

Monitoring, verification and reporting

The DCs are required to report periodically on the steps taken by them for complying with the notified energy consumption norms. The PAT Rules establish an elaborate framework for monitoring, verification and compliance reporting by each of the DCs.

Procedure for issuance of energy saving certificates (ESCerts)

Based on the performance assessment report submitted by the DC, the BEE recommends issuance of ESCerts to the central government. Upon receiving recommendations from the BEE, the central government issues ESCerts in electronic form. The ESCerts may be sold by DCs through power exchanges. The value of one ESCert is equal to one metric ton of oil equivalent of energy consumed.

It is relevant to note that the ESCerts purchased by DC for the purpose of compliance with energy consumption norms stand expired after their submission to the BEE. DCs that are unable to comply with the prescribed energy standards can purchase the ESCerts in full satisfaction of the shortfall in the energy consumption norms.

Thus, at present, the PAT Rules place the obligation of undertaking energy saving measures, and thereby obtaining ESCerts, on the DCs. The trading of ESCerts can be done only by the DCs on the power exchanges. Since there is no provision for fungibility of ESCerts with any other

instrument (eg, the renewable energy certificates), the likely purchasers of ESCerts will therefore be the DCs from the identified industrial sectors, who can use ESCerts purchased for fulfilling their obligations under the PAT Rules.

16 Trading agreements

Are any standard agreements on emissions trading used in your country? If so, describe their main features and provisions.

There are no standard agreements on emission trading used in India.

Sectoral regulation

17 Energy production, use and efficiency

Give details of (non-renewable) energy production and consumption in your country. Describe any regulations on emissions. Describe any obligations on the state and private persons for minimising energy use and improving efficiency. Describe the main features of any scheme for registration of energy savings and for trade of related accounting units or credits.

Non-renewable energy production and consumption in India (including types and quantities of energy and related emissions)

Traditionally, thermal power projects and large hydro projects have been the main sources of electricity generation in India and the government of India has encouraged development of large thermal and hydel projects that could satisfy the power shortages in the country. However, over the past few years, the government has pursued a sustained policy of encouraging renewable energy sources as well. The move towards encouraging growth of renewable energy is a part of India's overall strategy to reduce its carbon emissions.

The energy sector in India is diversified. Data from the Central Electricity Authority with regard to the installed capacity under different categories of electricity generation are summarised below.

S.No.	Type	Installed capacity (MW) (as at 31 July 2014)
(i)	Thermal	172,986.09MW
(ii)	Nuclear	4,780.00MW
(iii)	Hydro	40,798.76 MW
(iv)	Renewable energy sources, which includes small hydro projects, biomass power, urban and industrial waste power, wind energy and solar power	31,692.14MW

Regulation on emissions

As discussed in questions 5 and 9, there is no law that specifically deals with regulation of greenhouse gas (GHG) emissions in India. However, the Environment (Protection) Act, 1986 (EPA) and the Air (Prevention and Control of Pollution) Act, 1981 (Air Act) are relevant in so far as they contain broad provisions that may potentially support regulation of GHG emissions. The EPA stipulates that no person carrying on any industry, operation or process shall discharge or emit any environmental pollutants in excess of such standards as may be prescribed. The central government has notified the Environment (Protection) Rules, 1986, which specify the standards for emission or discharge of environmental pollutants from various industries, operations and processes.

The Air Act provides for the prevention, control and abatement of air pollution and establishment of boards at the central and state level for this purpose.

Main features of scheme for registration of energy savings and for trade of related accounting units or credits

Question 15 provides details of the REC mechanism and the PAT scheme. An overview of the procedural aspects relating to issuance and registration of RECs and ESCerts is provided below.

Issuance of RECs

A generating company engaged in generation of power from renewable energy can apply for registration and seek issuance of RECs if it fulfils certain prescribed criteria: it should obtain accreditation from the state agency (as designated by the relevant State Electricity Regulatory Commission); it should not have any power purchase agreement to sell the electricity generated at preferential tariffs; and it should sell the electricity generated to distribution licensees in that area, or any other licensee or open access consumer at mutually agreed or through power exchanges at market determined price. Upon fulfilment of the eligibility criteria, the generating company can apply for registration with the central agency in accordance with the procedure prescribed by it.

As mentioned earlier, RECs can be traded through power exchanges or any other manner as may be prescribed by the CERC in future. The validity of RECs is 365 days from the date of issuance, even if the accreditation of such entity is revoked at a later date. These certificates are deemed to have been extinguished after they have been exchanged by way of sale or purchase at the power exchange.

Issuance of ESCerts under the PAT Scheme

The PAT Rules contain detailed procedure regarding establishment of energy consumption norms for the DCs. The DCs are required to comply with the prescribed energy efficiency standards within three years. The PAT Rules establish an elaborate framework for monitoring, verification and compliance reporting by each of the DCs, and mandate the submission of periodic reports by the DCs on the steps taken by them for complying with the notified energy consumption norms.

Based on a performance assessment report submitted by the DC, the BEE recommends the issuance of ESCerts to the central government. Upon receiving recommendations from the BEE, the central government issues ESCerts in electronic form. The ESCert may be sold by DCs through power exchanges. The value of one ESCert is equal to one metric ton of oil equivalent of energy consumed. It is relevant to note that the ESCerts purchased by DC for that purpose of compliance with energy consumption norms stand expired after their submission to the BEE. DCs that are found unable to comply with the prescribed energy standards can purchase the ESCerts in full satisfaction of the shortfall in the energy consumption norms.

18 Other sectors

Describe, in general terms, any regulation on emissions in connection with other sectors.

There are no specific laws in India regulating sector-specific emissions. However, the Air Act and the Environment (Protection) Act and rules and notifications issued pursuant to these legislations provide for emission standards that are applicable across all sectors, or in some instances to specific sectors. These are elaborated below.

Emission standards and air quality standards under Air Act

Applicable across all sectors

The National Ambient Air Quality Standards, 2009, notified under the Air Act, are applicable across all sectors, and specify the permitted concentration in ambient air in industrial, residential, rural and other areas, and areas notified as ecologically sensitive by the central government.

Also, the Air Act empowers the state governments to declare any area within the state as an air pollution control area, and consent of the state level pollution control board is then required for establishing and operating any industrial plant in such an air pollution control area. While scrutinising the applications for the setting up or operating of any industrial plants, the state boards have the power to impose any condition as a requirement for the grant of consent.

Sector-specific

Sector-specific emission standards have been notified by the MoEF, acting through the Central Pollution Control Board under the provisions of Air Act, for certain sectors including the following:

- vehicular pollution standards for passenger cars, heavy diesel vehicles and two- and three-wheelers;
- standards for emission and discharge from 104 industries (like petroleum oil refineries, thermal power plants, the sugar industry, the caustic soda industry, cement plants, iron ore mining and ore processing, aluminium plants, etc); and

- emission standards for sulphuric acid plants, common hazardous waste incinerators and incinerators for pesticide industries.

Emission standards prescribed under the Environment Protection Act

Applicable across all sectors

As discussed in questions 4 and 10, a list of 39 industrial projects and activities (such as thermal power plants, cement plants, metallurgical industries) have been specified as requiring prior environmental clearance (EC) before any construction work or preparation of land is undertaken. Such ECs contain project-specific conditions to mitigate environmental impact during implementation of a project or activity. The ECs may contain additional stipulations regarding emissions from the project.

Sector-specific

The EPA empowers the central government to make rules regarding, inter alia, the maximum allowable limits of concentration of various environmental pollutants. Pursuant to this power, the central government has notified the Environment (Protection) Rules, 1986, which specify the standards for emission from specific equipment, for instance- furnace, boiler and captive power plant, FCC regenerators, and sulphur recovery units.

Renewable energy and carbon capture

19 Renewable energy consumption, policy and general regulation

Give details of the production and consumption of renewable energy in your country. What is the policy on renewable energy? Describe any obligations on the state and private parties for renewable energy production or use. Describe the main provisions of any scheme for registration of renewable energy production and use and for trade of related accounting units or credits.

Renewable energy production

As per data available from the MNRE, the cumulative deployment of renewable energy in India on 31 May 2014 is as follows.

Renewable energy programme/systems	Target for 2014-15	Total deployment in 2013-14	Cumulative achievement up to 31 May 2014
Grid-interactive power (capacities in MW)			
Wind power	2,000	608.20	21,262.23
Small hydro power	250	74.50	3,803.65
Biomass power	100	-	1,365.20
Bagasse cogeneration	300	-	2,648.35
Waste to power - urban	20	-	106.58
Waste to power - industrial	-	-	-
Solar power (pv)	1,100	152.56	2,647
Total	3,770	835.26	31,833.01
Off-grid/ captive power (capacities in MWEQ)			
Waste to energy - urban	10	-	132.73
Waste to energy - industrial	-	-	-
Biomass (non-bagasse) cogeneration	80	15.69	531.82
Biomass gasifiers - rural	0.80	0.10	17.48
Biomass gasifiers - industrial	8	1.30	147.20

Renewable energy programme/systems	Target for 2014-15	Total deployment in 2013-14	Cumulative achievement up to 31 May 2014
Aero-generators/hybrid systems	0.05	0.03	2.25
SPV systems (>1kW)	60	7.19	174.35
Water mills/micro hydel	4.00 (500 Nos.)	-	13.21 (2643 Nos.)
Bio-gas-based energy system	2	-	3.77
Total	158.85	24.31	1,022.81

Policy on renewable energy

As mentioned earlier, the NAPCC (see question 3 for further details) is the leading policy document regarding formulation of climate change measures and achieving emission reductions, which drives the renewable energy and energy efficiency measures in India. In addition, the National Tariff Policy, 2006 contains specific mandate for promotion of renewable energy in the country. It is supported by the provisions of Electricity Act, 2003, and regulations notified pursuant thereto.

The National Tariff Policy, 2006 (NTP), issued by the Ministry of Power, was amended in 2011 to include specific provisions regarding promotion of non-conventional and renewable sources of energy.

The NTP requires the appropriate electricity commissions to fix the minimum percentage of total consumption of electricity in the area of a distribution licensee for purchase of energy from renewable energy sources, taking into account the availability of such resources in the region and its impact on retail tariffs. Within this requirement to fix the minimum RPO, the NTP requires the fixation of the minimum purchase obligation specifically for solar energy. The NTP was amended in 2011 to require SERCs to fix solar-specific RPOs, which may start with 0.25 per cent by the end of 2012-2013 and go up to 3 per cent by 2022.

The NTP recognises that purchase of renewable energy should take place in similar proportions in different states, and for this purpose recommends the mechanism of RECs, whereby renewable energy-based generation companies can sell the electricity to local distribution licensee at the rates for conventional power and can recover the balance cost by selling RECs to other distribution companies and obligated entities enabling the latter to meet their RPO obligations.

Further, the NTP states that procurement of renewable energy by distribution companies should be done at preferential tariffs since it will take time for non-conventional technologies to compete with conventional energy.

Renewable Purchase Obligations (RPOs)

The mandate regarding RPOs in the NTP is supported by the provisions of the Electricity Act. The Act mandates each SERC to promote the generation and cogeneration of electricity from renewable energy sources by specifying a percentage of total electricity consumption in the area of a distribution licensee for the purchase of electricity from such sources. The Electricity Act does not use the term 'RPO'. This term has been used and defined under the CERC (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificates (REC) for Renewable Energy Generation) Regulations, 2010, as 'the requirement specified by the State Commissions under clause (e) of subsection (1) of section 86 of the Electricity Act, 2003, for the 'obligated entity' to purchase electricity from renewable energy sources'.

SERCs of 26 states in India have so far issued orders or regulations specifying RPOs. The guiding principle in SERC fixation of RPOs is availability of resources and impact on retail tariff as outlined in the NTP. The RPOs notified by SERCs in different states vary on certain aspects such as the RPO percentage, the nature of obligated entities, the eligible renewable energy sources for fulfilling the RPO and the enforcement or compliance mechanism.

Renewable Energy Certificates (RECs)

As stated in the NTP, the REC mechanism aims to address the mismatch between availability of renewable energy sources in states and the requirement placed on certain entities to meet their RPO by purchase of RECs.

The REC mechanism is implemented through regulations notified by the Central Electricity Regulatory Commission.

See question 15 for further details on the REC mechanism.

RE-specific tariff

The mandate to set preferential tariffs for energy from RE sources was set out in the NTP in 2006, as explained above. Tariff setting in India is within the jurisdiction of the CERC and state electricity regulatory commissions (SERCs). The CERC has the power to specify a tariff for generating companies owned/controlled by the central government, and interstate transmission of electricity; while the SERC has the power to specify tariffs for intra-state transmission of electricity.

The Electricity Act specifies several factors that need to be taken into account by both the CERC and SERCs while determining tariffs, including the 'promotion of cogeneration and generation of electricity from renewable sources of energy'. Each year the CERC notifies the generic tariff for various RE technologies. For the year 2014-15, CERC has determined, in its order dated 15 May 2014, a generic tariff for wind, small hydro, biomass, non-fossil fuel based co-generation, solar thermal and solar PV, biomass gasifier based power projects and biogas-based power projects. At the state level, several SERCs have also specified tariffs for various RE-technologies. Project specific tariff is envisaged for new RE technologies, and technologies that are still at a nascent stage of development. For determination of project specific tariff, the developer is required to file a petition.

Further, section 63 of the Electricity Act allows the CERC and SERCs to adopt a tariff determined through the transparent process of bidding in accordance with the guidelines issued by the central government. In this regard, MNRE has issued Guidelines as well as Standard Bidding Documents for Tariff Based Competitive Bidding Process for Grid Connected Power Projects Based on Renewable Energy Sources.

Sector-specific policies by MNRE

The MNRE implements various policies and schemes applicable to different renewable energy sectors. Please see questions 20-24 for further details.

State-specific renewable energy policies

In addition to the measures taken by the central government, various state governments have formulated specific state-level renewable energy policies. These policies are expected to benefit all renewable energy sources. Several states also have sector-specific policies, for example, for solar, or small-hydro, or wind projects only. The key aspects of these policies include issues regarding land allocation; statutory clearance through single window mechanism; and incentives such as wheeling, exemption from certain taxes and other fiscal incentives. Some state-level policies are further elaborated in questions 20 to 24.

20 Wind energy

Describe, in general terms, any regulation of wind energy.

There is no single sector-specific law or policy that applies to the wind energy sector in India. However, this sector benefits from various sector-specific notifications and guidelines.

Wind as a source of RE has been receiving the benefits of government schemes and incentives since the mid-1980s. The key promotional activities include wind resource assessment activities, research and development support, implementation of demonstration projects to create awareness and opening up of new sites, and development of infrastructure capability and capacity for manufacture and maintenance of wind electric generators.

The MNRE has continued its Generation Based Incentive Scheme for Grid Interactive Wind Power Projects during the twelfth five-year plan period of 2012-17 (GBI Scheme). This scheme had also been implemented during the 11th five-year plan period. The GBI Scheme aims to broaden the investor base, incentivise actual generation with the help of generation or outcome-based incentives, and facilitate entry of large independent power producers and foreign direct investors in the wind sector. A generation based incentive at the rate of Re 0.50 per unit of electricity fed into the grid will be provided to wind electricity producers, for a period not less than four years and for a maximum period of 10 years. This is capped at a maximum of 10 million rupees per MW. This incentive is available to wind turbines commissioned on or after 1 April 2012 and for the duration 2012-17.

Also, the MNRE has implemented a 'Programme on Small Wind Energy And Hybrid Systems' (SWES). The SWES programme of MNRE has been in existence since 2002, and has received its continuation approval for the period 2012-17. The objective of the programme is to develop technology and promote applications of water pumping windmills and aero generators or wind solar hybrid systems. The financial assistance to be provided under the scheme during 2012-17 is 500 million rupees. The financial assistance is available at the rate of 100,000 rupees per MW, only to community users.

The Centre for Wind Energy Technology (C-WET), Chennai, established in Tamil Nadu in 1998 as an autonomous institution under the administrative control of the MNRE, plays a critical role in implementing the guidelines in the wind energy sector. The C-WET's main activities include resource assessment and testing and certification.

The MNRE has issued self-certification guidelines for wind power projects for machines that are taken up for type-testing and certification by the C-WET or internationally accredited type-testing and certifying agencies. These guidelines are applicable both to existing and new manufacturers of wind turbines, who meet the prescribed qualifying criteria. C-WET undertakes evaluation of wind turbines set up under self-certification and sends recommendations to the MNRE regarding continuation of a particular model's entitlement for self-certification. Also, the MNRE has released 'Guidelines for installation of prototype wind turbine models' dated 22 May 2012, applicable for all wind turbine manufacturers in India who are desirous to install prototype wind turbine models and synchronise the Indian grid system. These guidelines permit manufacturers to apply to C-WET to obtain recommendation to permit installation of wind turbine prototype model for testing and grid synchronisation or commissioning, and undertake type testing and certification through internationally accredited testing and certification bodies within three years from date of recommendation letter issued by C-WET.

Incentives at the central level

Direct tax benefits available for power projects

RE projects may also avail of benefits available generally to power plants under the Income Tax Act, 1961, subject to fulfilment of criteria specified therein, for example:

- accelerated depreciation: accelerated depreciation up to 80 per cent of the project cost in the first year, and additional depreciation at the rate of 20 per cent for projects commissioned after March 2005 with new plant and machinery; and
- tax holiday: income tax exemption on earnings for 10 years.

Additionally, excise duty exemption and sales tax exemption are also available for wind energy projects. Pursuant to the Union Budget 2014-15, basic customs duty on forged steel rings, which are used in manufacture of bearings for wind-operated electricity generators, has been reduced from 10 per cent to 5 per cent. Further, wind generator manufacturing parts have been exempted from 4 per cent special additional duty.

Pricing regime

The CERC determines a generic levelled tariff for wind projects. Similarly, each SERC determines a generic levelled tariff for wind projects within that state. For example, the applicable tariff for wind projects in Andhra Pradesh is 4.70 rupees per kWh for projects that enter into power purchase agreements between 15 November 2012 and 31 March 2015; and in Maharashtra the wind energy tariff has been fixed for four wind zones, between 3.92 rupees per kWh and 5.70 per kWh for the financial year 2015.

State-level schemes

In addition to the incentives listed above, some incentives are also available for wind projects at the state level. Some state renewable energy policies specifically contain provisions regarding wind projects. For example, the Karnataka Renewable Energy Policy, 2009-14 aims at renewable energy power generation in the state of Karnataka. In addition to benefits generally available under this policy to renewable energy projects, it contains specific provision regarding promotion of wind energy. Some of these wind energy-specific provisions are as follows: provide for single window clearance for expeditious commissioning of wind projects; undertake wind resource assessment through Karnataka Renewable Energy Development Limited (KREDL) and offer the identified windy sites for development on public private participation/build operate own and transfer mode;

the government waste lands in windy locations identified for industrial development will be offered to set up wind projects; and to avoid the locking of huge capacities, the wind project allotment will be restricted to 50MW at a given area each time.

21 Solar energy

Describe, in general terms, any regulation of solar energy.

National Solar Mission

The Jawaharlal Nehru National Solar Mission (JNNSM) is one of the eight missions of the National Action Plan on Climate Change. JNNSM has adopted a three-phase approach for achieving the target of deploying 20,000MW of grid-connected solar power in India by 2022. The 11th Plan and first year of the 12th Plan (up to 2012-13) has been considered as Phase I, the remaining four years of the 12th Plan (2013-17) are included as Phase II and the 13th Plan period (2017-22) is envisaged as Phase III.

Phase I of JNNSM was implemented through competitive bidding in two batches, which have cumulatively resulted in a selection of projects of 1044MW capacity. The bidding process under JNNSM Phase I required bidders to provide a discount to the CERC determined generic levelled for solar power projects. For instance, the selection of projects under batch II of JNNSM Phase I was based on reverse bidding for selection of companies that offered the highest discount on the base CERC tariff of 15.39 rupees per kWh. The winning bids for solar PV under batch II of JNNSM Phase I varied from 7.49 rupees per kWh to 9.41 rupees per kWh, at an average bid price of 12.15 rupees per kWh. In batch I of Phase I, the range varied from 10.95 rupees per kWh to 12.76 rupees per kWh with an average bid price of 12.15 rupees per kWh.

In Batch I of Phase II, 750MW of grid connected solar PV power projects were approved with viability gap funding from the National Clean Energy Fund mentioned earlier. This scheme was implemented by Solar Energy Corporation of India (SECI) in association with NRVN. The projects were selected through a process of open competitive reverse bidding on VGF required by the bidders to enable them to supply solar power to SECI at specified rates for a period of 25 years.

The National Vidyut Vyapar Nigam Limited (NVRN) was the entity that entered into power purchase agreements (PPAs) with selected bidders during Phase I. NVRN is a wholly owned subsidiary of NTPC Ltd, which in turn is owned by the government of India. During Phase II, the implementing agency is SECI, which is also a government of India enterprise established in 2011 for implementation and facilitation of projects in the solar energy sector.

The Draft Standard PPA that was followed for the bidding process under JNNSM Batch I of Phase II is available at the SECI website. The PPA ensures purchase of power from the developer by SECI at the specified price, and puts in place a payment security scheme that will be triggered in any default situation. The power developer is required to provide a letter of credit.

Pricing regime

The CERC determines generic levelled tariff for solar projects. Similarly, each SERC determines generic levelled tariff for solar projects within that state.

Incentives at the central level

Direct tax benefits available for power projects

RE projects may also avail of benefits available generally to power plants under the Income Tax Act, 1961, subject to fulfilment of criteria specified therein, for example:

- accelerated depreciation: accelerated depreciation up to 80 per cent of the project cost in the first year, and additional depreciation at the rate of 20 per cent for projects commissioned after March 2005 with new plant and machinery; and
- tax holiday: income tax exemption on earnings for 10 years.

Indirect tax benefits available for power projects

Pursuant to the Union Budget 2014-15, full exemption from basic customs duty has been provided on:

- specified raw materials used in manufacture of solar backsheets and EVA sheet for use in manufacture of solar PV cells or modules; and

- flat copper wire for use in the manufacture of PV ribbons (tinned copper interconnect) for solar PV cells or modules. Further, basic customs duty on machinery, equipment etc. required for initial setting up of solar energy projects has been reduced to 5 per cent.

Further, the Union Budget 2014-15 also provided full exemption from excise duty on:

- specified raw materials used in the manufacture of backsheets and EVA sheet for manufacture of solar photovoltaic cells or modules;
- backsheets and EVA sheet used in the manufacture of solar photovoltaic cells or modules;
- solar tempered glass used in the manufacture of solar photovoltaic cells or modules, solar power generating equipment or systems and flat plate solar collectors;
- on flat copper wire used in the manufacture of PV ribbons (tinned copper interconnect) for use in the manufacture of solar cells or modules; and
- machinery, equipment, etc. required for initial setting up of solar energy production projects.

Other incentives for power projects

The Union Budget 2014-15 has also allocated 5 billion rupees for solar ultra megawatt projects in the states of Rajasthan, Gujarat, Tamil Nadu, Andhra Pradesh and Ladakh, namely, 4 billion rupees for solar-powered agricultural pump sets and water pumping stations and 1 billion rupees for the development of 1MW solar parks on the banks of canals.

State-level schemes

Schemes and incentives for solar power vary across states. Developers typically tend to focus on states that provide land at concessional rates, have a strong transmission network, etc. Some examples of state-specific solar policies are provided below.

Gujarat

The state government of Gujarat issued its Solar Power Policy, 2009 (Gujarat Solar Policy) in order to actively promote solar power as an alternative source of energy. This policy is valid until 31 March 2014, and solar power generators installed and commissioned during this period are eligible for incentives for a period of 25 years from date commissioning or their life span, whichever is earlier. The Gujarat Solar Policy exempts electricity from solar power generator and used for self consumption or sale to third parties or sale to licensee from payment of electricity duty. It also fixes the levelled fixed tariff per unit under a power purchase agreement to be specified by the Gujarat Urja Vikas Nigam Limited or distribution licensees.

Rajasthan

The Rajasthan Solar Policy, 2011 aims at developing Rajasthan as a global hub of solar power. It seeks to select developers through tariff-based competitive bidding, and promote solar power producers to establish solar power plants in Rajasthan along with solar PV manufacturing plants. The solar power projects established for sale of power to parties other than distribution companies of Rajasthan, are required to deposit a non-refundable development charge of 10 million rupees per MW, which is deposited into a fund for development of renewable energy infrastructure in Rajasthan. Additionally, it provides a slew of incentives to solar power developers, including assistance in obtaining land for the project, allocation of water, and exemption from payment of electricity duty for captive consumption. a

Karnataka

The Karnataka Solar Policy, 2011-16 is valid until 31 March 2016. It envisages installation of 200MW of solar energy in Karnataka by 2015-16 for procurement by distribution companies. Annual capacity addition of 40MW is envisaged during each year from 2013-14 to 2015-16. The projects will be developed through a competitive bidding process.

22 Hydropower, geothermal, wave and tidal energy

Describe, in general terms, any regulation of hydropower, geothermal, wave or tidal energy.

Hydropower

The Hydro Power Policy, 2008 issued by the government of India, classifies hydro power projects up to the capacity of 25MW as small hydro projects, and vests the MNRE with the responsibility of developing them.

The Hydro Power Policy, 2008 lists several incentives for small hydro projects, key among which are: incentives for detailed survey and preparation of Detailed Project Reports; incentives during the execution of the project in the form of capital or interest subsidy; special incentives for execution of small hydro projects in the North Eastern Region by the government departments, state electricity board and state agencies; financial support for renovation and modernisation and upgrading of old small hydropower stations (soft loans to be provided to small hydel projects through institutions like IREDA, Power Finance Corporation Ltd or Rural Electrification Corporation Limited).

The MNRE estimates that the potential for power generation from small and mini hydel projects is 19,749MW from 6,474 identified sites. Approximately half of this potential lies in the states of Himachal Pradesh, Uttarakhand, Jammu and Kashmir and Arunachal Pradesh. Also, in the plains, the states of Maharashtra, Chhattisgarh, Karnataka, and Kerala have considerable potential for small hydropower development as well. The MNRE gives attention to these states through interaction, monitoring of projects and reviewing the policy environment to attract investments from the private sector. The MNRE provides central financial assistance to state governments and private sector to set up small and mini hydro projects. It also supports survey and investigation activities, preparation of detailed project reports, project monitoring and training.

MNRE is reportedly undertaking development of micro hydel projects up to a capacity of 100kW for remote village electrification. Local organisations, like water mill associations, cooperative societies, registered NGOs, village energy cooperatives, etc, are involved with MNRE in implementing these projects.

Incentives at the central level

Direct tax benefits available for power projects

RE projects may also avail of benefits available generally to power plants under the Income Tax Act, 1961, subject to the fulfilment of criteria specified therein, for example:

- accelerated depreciation: accelerated depreciation up to 80 per cent of the project cost in the first year and additional depreciation at the rate of 20 per cent for projects commissioned after March 2005 with new plant and machinery; and
- tax holiday: Income tax exemption on earnings for 10 years.

Pricing regime

The CERC determines the generic levelled tariff for small hydro projects. Similarly, each SERC determines the generic levelled tariff for small hydro projects within that state.

State-level schemes

Twenty-four states have specific policies for development of small hydro projects. The facilities available in these states include wheeling of power produced, banking, buy-back of power, facility for third party sale, etc. Examples of small hydro policies (SHPs) in two states are provided below.

Arunachal Pradesh

The Arunachal Pradesh Small Hydro Policy dated 24 January 2008 (AP SHP Policy) outlines several incentives for private participation in development of SHP projects. It allows registered companies having a registered office in Arunachal Pradesh, or partnerships, sole proprietors, NGOs, cooperative societies, joint venture concerns or consortium of companies whose leading partner is a bonafide Arunachalee, to invest in SHP projects under this policy.

Pursuant to the AP SHP Policy, the government of Arunachal Pradesh will facilitate the developers in getting tax concessions, subsidies as may be available from the central government for development of SHP projects.

'Indigenous' (ie, bona fide of Arunachal Pradesh) tribal entrepreneurs will be exempted from supplying 'free power' to the state government under this policy for projects up to 5MW capacity.

As an incentive for speedy completion of projects, a moratorium on free power will be allowed for specified years for SHP projects above 1MW (for example for projects above 1MW up to 5MW the moratorium period will be three years from the scheduled commercial operations date.) 'Free power' at concessional rates will be provided by the developer after the moratorium period up to the 50th year.

Developers will be allowed to bank power generated with the prior permission of the state government. Also, the developers will also be allowed to use transmission system and other facilities for open access and wheeling of power.

Maharashtra

The state of Maharashtra issued the 'State Hydel Policy for Development Of Small Hydro Power Projects through Private Sector Participation, 2005'. This policy aims to encourage the participation of 'Captive Power Producers' (CPPs) and 'Independent Power Producers' in development of SHP projects in the state of Maharashtra. The main objective of the policy is to harness the green power with the help of the private sector, to create sustainable environment for attracting private sector investment and to lay down the framework for implementation of the policy.

The key incentives provided by the state government under the Maharashtra SHP Policy are as follows:

- the developer will be required to complete any project under this policy within 24 months from the date of allotment. In the event the project is completed before the scheduled time he or she will be exempted from payment of water royalty charges and maintenance charges to the extent of units generated before the scheduled date of commissioning;
- CPPs will be exempted from electricity duty on self consumption of electricity for the first five years after commissioning if the consumption unit is located in Maharashtra. They will also be exempted from tax on the sale of electricity if the consumption unit is located in Maharashtra. The Maharashtra Energy Development Agency will assist the developers in getting incentives for SHP projects from the MNRE;
- the developer can establish, operate and maintain a generating water power plant without any licence, subject to the techno-economic feasibility report being approved by Water Resources Department, all the statutory clearances received and technical standards relating to connectivity to the grid as specified in the policy and the Electricity Act, 2003 are followed; and
- transfer of ownership of a generating unit completely to another developer will be allowed with the prior approval of the Water Resources Department.

Geothermal energy

India does not have any installed capacity of geothermal energy. The government of India is reportedly planning to announce a Geothermal Policy. The governments of Gujarat, Chhattisgarh, Andhra Pradesh and West Bengal have also indicated a plan to set up geothermal power projects. Further, it has been reported that the National Thermal Power Corporation (NTPC), a company owned by the government of India, has signed a memorandum of understanding with the Chhattisgarh Renewable Energy Development Agency to set up a geothermal power project at Tattapani in Chhattisgarh. NTPC has also signed a memorandum of understanding with the Geological Survey of India to prepare a detailed project report for setting up such a geothermal power project.

Wave and tidal energy

The Gulf of Cambay and the Gulf of Kutch on India's west coast have been estimated to have the maximum tidal range. The Ganges delta in the Sunderbans in the state of West Bengal has also been estimated to have good locations for small-scale tidal power development. There is no specific policy at the central level; however, the government of the state of Gujarat is reportedly framing a specific policy to address wave and tidal energy.

23 Waste-to-energy

Describe, in general terms, any regulation of production of energy based on waste.

Compliance with MSW Rules

Each waste to energy project is required to obtain an authorisation under the Municipal Solid Wastes (Management and Handling) Rules, 2000 (MSW Rules) issued by the MoEF. The MSW Rules, among other things, specify the standards for management and handling of MSW (collection, segregation, storage, transportation), landfill facilities to be provided for the project, measures to prevent pollution, ambient air quality standards at landfill site and its vicinity.

Pricing regime

A generic tariff is not fixed for waste to energy projects, since the CERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2012 specify that project specific tariffs will be determined for MSW projects upon a petition being filed in this regard by the relevant developer. Project specific tariffs for such projects has been determined in only a handful of cases so far. For example, in Karnataka, levelised tariff of 4.15 rupees per kWh (over 20 years) has been fixed for a MSW project, and in Maharashtra a levelised tariff of 4.88 rupees per kWh (over 20 years) has been fixed.

Incentives for pilot projects under MNRE Scheme

The MNRE has been promoting technology options available for establishing projects for recovery of energy from waste, and providing financial assistance to these projects through various schemes. A National Master Plan for Development of Waste to Energy in India has been developed by the MNRE, which sets targets for waste to energy potential from urban and other wastes for financial years 2004-05 to 2016-17. It proposes the following strategies for achieving the targets: interest subsidy should be related to commercial viability of the project, transition from subsidy to a self-sustaining regime and development of strategies to encourage private initiatives.

During the financial year 2012-13, the MNRE implemented the 'Programme on Energy Recovery from Municipal Solid Waste' to provide financial assistance for setting up five pilot projects for power generation from MSW. It is envisaged that these projects will be taken up by urban local bodies and other governmental organisations in public-private partnership mode. The nature of financial assistance to be provided includes but is not limited to the following: assistance at the rate of 20 million rupees per MW, subject to a ceiling of 20 per cent of project cost and 100 million rupees crore per project, whichever is less; financial assistance will be provided to projects selected through a transparent competitive procedure, financial assistance that is 20 per cent higher than those specified for different categories of projects will be provided for projects in north eastern region and special category states, namely, Himachal Pradesh, J&K, Sikkim and Uttarakhand; and 50 per cent of the cost of preparation of detailed project reports subject to a maximum of 1 million rupees per project will be provided.

State-level schemes

In addition to the incentives listed above, some incentives are also available for waste to energy projects at the state level. Examples of such incentives from two states are provided below.

Karnataka

The Karnataka Renewable Energy Policy, 2009-14 targets harnessing 50 MW of power through urban, municipal and industrial solid and liquid waste projects and identifies Bangalore as one of the priority areas where power generation from MSW plants would be established. It further states that land for waste to energy projects will be identified by municipal corporations and installation of digesters to convert green waste to methane gas in hotels, kalyan mandaps and other establishments for power generation will be encouraged.

Punjab

With respect to power generation from urban, municipal and industrial liquid and solid waste, the New and Renewable Sources of Energy Policy 2012 (Punjab NRSE Policy) notes that about 5000MT of municipal, urban and industrial solid waste is being produced every day in the urban areas of

the state. It envisages that projects for scientific processing and treatment of this quantity of waste shall be supported on different waste streams in the state, so as to achieve a target of 50MW power generation in this sector by 2022.

The incentives available to other renewable energy projects under the Punjab NRSE Policy will also be available to waste to energy projects, including the following:

- the renewable power generation and consumption by generators themselves as a captive unit from renewable projects shall be fully exempted from levy of electricity duty. Also, 100 per cent electricity duty for power consumed from state licensee during construction and testing of the project shall be waived;
- to promote usage and generation from renewable sources, manufacturing and sale of renewable energy devices and systems and equipment required for such projects shall be exempted from Value Added Tax (VAT) and any excess thereupon;
- exemption from entry tax of 100 per cent in respect of all supplies (including capital goods, structure and raw materials) made for setting up and trial operations of the renewable energy projects;
- exemption from payment of fee and stamp duty for registration and lease deed charges for the land required for the project of 100 per cent; and
- agricultural land shall be allowed to be used for setting up of renewable energy power projects in the state and no fees for change of land use or any other charges or fees for the same shall be payable.

24 Biofuels

Describe, in general terms, any regulation of biofuels.

Biofuels are liquid fuels and blending components produced from biomass (plant) feedstocks, used primarily for transportation.

Biofuels have been receiving incentives from the central government for the past few years, for instance, sale of 5 per cent ethanol blended petrol is mandatory in certain states since 2004, and in July 2009 the central government exempted the blend of 80 per cent or more high-speed diesel oil and up to 20 per cent biodiesel from all additional excise duty.

National Policy on Biofuels

On 24 December 2009, the National Policy on Biofuels (Biofuels Policy) was announced by the central government. It addresses the issues relating to plantations, and processing and marketing of biofuels. The Biofuels Policy aims at mainstreaming of biofuels and envisions a central role for it in the energy and transportation sectors of the country in the coming years. It endeavours to facilitate and bring about optimal development and utilisation of indigenous biomass feed stocks for production of biofuels. It proposes an indicative target of 20 per cent blending of biofuels, both for biodiesel and bio-ethanol by 2017.

It defines 'biofuels' as liquid or gaseous fuels produced from biomass resources and used in place of, or in addition to, diesel, petrol or other fossil fuels for transport, stationary, portable and other applications. Further, 'biomass' resources are defined as the biodegradable fraction of products, wastes and residues from agriculture, forestry and related industries as well as the biodegradable fraction of industrial and municipal wastes.

The Biofuels Policy is limited in scope to three types of biofuels, namely:

- bio-ethanol, which is ethanol produced from biomass such as sugar-containing materials, like sugar cane, sugar beet, sweet sorghum, etc; starch containing materials such as corn, cassava, algae, etc; and, cellulosic materials such as bagasse, wood waste, agricultural and forestry residues, etc;
- biodiesel, which is a methyl or ethyl ester of fatty acids produced from vegetable oils, both edible and non-edible, or animal fat of diesel quality; and
- other biofuels like biomethanol, biosynthetic fuels, etc.

At the central level, MNRE has been given responsibility for the Biofuels Policy and overall coordination concerning biofuels. At the state level, states will designate or create nodal agencies for development and promotion of biofuels in their states. Other ministries such as the Ministry of Rural Development, MoEF, Ministry of Science and Technology have also been made responsible to deal with other aspects of biofuels development.

Some of the key incentives given pursuant to the Biofuels Policy are as follows: subsidies and grants for new and second generation feedstocks,

Update and trends

The outcome of the ongoing climate change negotiations are likely to influence laws and policies at the national level. The contours of the Paris Agreement, which will replace the Kyoto Protocol, are as yet unclear. There are, however, indications that the agreement will lead to progressive enhancement in the nature of obligations that developing countries may undertake, based on commitments from developed countries. Any such development is likely to influence domestic law and policy.

production units based on new and second generation feedstocks; no central taxes and duties are proposed to be levied on biodiesel and bio-ethanol; concessional custom and excise duty on plant and machinery for production of biodiesel or bio-ethanol or well as for engines run on bio-fuels for transportation, if they are not manufactured indigenously; and a National Biofuel Fund, if necessary, may be created to provide finances.

In relation to financing, the Biofuels Policy provides that plantations of non-edible oil bearing plants, creation of infrastructure for storage and distribution of biodiesel and setting up of oil extraction and processing units will be considered as priority sectors for lending finances. Also, the National Bank for Agricultural and Rural Development, IREDA and SIDBI would play an active role in providing finances at different levels of the bio-fuels chain.

State-level schemes

At the state level, many states are believed to have initiated schemes for promoting growth of crops that can be used to produce biofuels.

For instance, Rajasthan has a biofuels development authority and a specific biofuel policy. The Rajasthan government has also formulated the Rajasthan Land Revenue (Allotment of waste land for bio-fuel plantation and bio-fuel based Industrial and processing unit) Rules, 2007, which lay down the procedure for allotting land for biofuel plantation, and for bio-fuel-based industry and processing units to, inter alia, government undertakings and companies.

Chhattisgarh also has a specific biofuel authority for development of biofuels in their state and has notified the Lease (government land for Ratanjot/Karanj plantation and bio-diesel based processing unit) Rules on 1 September 2006 for grant of a lease on wastelands to government undertakings of the government of Chhattisgarh. Private sector entities, therefore, cannot apply under these rules.

25 Carbon capture and storage

Describe, in general terms, any policy on and regulation of carbon capture and storage.

Research programmes have been initiated on assessing the potential for carbon capture and storage in India. There is, however, no specific policy and regulatory framework for addressing CCS as yet.

Climate matters in transactions**26 Climate matters in M&A transactions**

What are the main climate matters and regulations to consider in M&A transactions and other transactions?

Compliance with the provisions of all applicable laws in India, including requirements under the Environment Protection Act and the Air Act with regard to pollution-related requirements, is a key requirement that needs to be addressed during the due diligence stage of any M&A transaction.

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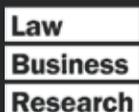
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