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INDIA: INVENTORY OF ESTIMATED BUDGETARY SUPPORT AND TAX EXPENDITURES FOR FOSSIL-FUELS

Energy resources and market structure

India is one of the fastest growing energy markets in the world. The country is the world's third largest coal producer owing to its large deposits. Coal is the leading primary fuel in India's energy mix, accounting for 44% of the country's total primary energy supply (TPES), with thermal power plants making up the majority of coal consumption. Biomass accounts for 25% of total energy use, followed by oil and natural gas, which account respectively for 22% and 7% of the country's energy needs. Remaining energy sources, such as nuclear power and hydro-electricity, account for about 1% each. The country's proven reserves of oil were 5.5 billion barrels as of December 2012; nonetheless, domestic production falls far short of domestic demand and the country depends heavily on imported crude oil.

The state-owned coal company, Coal India Limited (CIL), retains a near monopoly of coal extraction, with over 90% of domestic coal extraction attributed to government-controlled mines. Most coal mining occurs in the states of Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, and West Bengal. Market reforms are being implemented to bring competition and transparency to the coal sector. The government has been grappling to get an effective regulatory framework in place, which includes the loosening of regulations for the coal industry, with the objective of moving some grades of coal closer to international market prices, and allocating additional coal blocks through a transparent open bidding process. The government has also allocated more than 200 coal blocks (known as non-CIL blocks) for development by private and public entities outside the purview of the government-owned coal companies, though India's coal production to date has not been sufficient to meet domestic demand.

The market share of state-owned companies in all three segments of the oil and gas sector in India is significant, especially in the downstream segment, where regulated prices of petroleum products have historically discouraged the entry of private players. Some of the country's largest refineries are, nevertheless, in private hands, such as Jamnagar's in the west. India's major state-owned oil and gas companies include Oil and Natural Gas Corporation (ONGC), its international subsidiary ONGC Videsh Limited, and Oil India Ltd (OIL), which together dominate the market in terms of production volume. Other important state-owned oil and gas companies include Gas Authority of India Limited (GAIL), Mangalore Refinery and Petrochemicals Limited (MRPL), Numaligarh Refinery Limited (NRL), Indian Oil Corporation Limited (IOCL), Bharat Petroleum Corporation Limited (BPCL), Hindustan Petroleum Corporation Limited (HPCL) and Chennai Petroleum Corporation Limited (CPCL).

Most crude-oil reserves are found in the western offshore part of India. The basin of Assam-Arakan in the northeast part of the country contains more than 10% of India's oil reserves and is also an important oil-producing region. Since 1990, domestic crude oil production has only grown at an annual rate of 1%. In order to exploit the domestic production potential of crude oil and natural gas and reduce India's dependence on imported petroleum products, the government introduced in 1999 the New Exploration Licensing Policy (NELP), allowing public-sector and private companies to bid on development blocks with up to 100% of foreign control. The NELP is currently in its 9th round of bidding.

Natural gas is an emerging energy resource in India and primarily serves as a substitute for coal in electricity generation. The production of natural gas has been largely dependent on domestic sources, controlled by public-sector companies, such as ONGC, as well as private companies, such as Reliance Industries Limited (RIL). As with crude oil, most natural-gas reserves are located in the western offshore part of the country. In order to meet growing demand for natural gas, the Indian government is increasingly relying on imported Liquefied Natural Gas (LNG) and has embarked on an ambitious National Gas Pipeline project, aiming to develop a nationwide network to transmit and distribute natural gas to power and fertiliser plants. Most natural-gas pipelines are currently in the northern and western region of the country and are operated by GAIL, the state-owned gas transportation major.

As for the electricity sector, structural and regulatory reforms have been attempted in order to deal with a lack of investment and severe shortages of fuel, leading to frequent blackouts. While 93% of urban households have access to electricity, only 67% of rural households do. In 2005, the federal government announced the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGLVY) programme to extend electricity access to rural villages over a period of five years. While the programme has succeeded in electrifying many rural areas, rural households in India still tend to rely a lot on traditional biomass for cooking, heating, and lighting. The 2003 Electricity Act consolidated a set of laws designed to reorganise the generation, transmission, distribution, and use of electricity, with a long-term plan to rationalise electricity prices. Electricity demand is increasing rapidly, with India's Central Electricity Authority (CEA) co-ordinating electricity policy. Both the state-owned Power Grid Corporation of India (POWERGRID) and private power-generating companies are investing in the sector, with private generating capacity growing faster than state-owned capacity.

Prices, taxes and support mechanisms

Energy prices are highly regulated in India. The government has several times intervened to control the prices of petroleum products[1] through state-owned oil companies, with the primary objective being to protect domestic consumers from international price volatility. The pricing of petroleum products was until 1997 achieved through the Administered Pricing Mechanism (APM), using both a cost-plus pricing system for fuel suppliers and a cross-subsidisation policy favouring certain users or fuels. From 1997 on, the APM was then gradually dismantled. Gasoline prices were officially deregulated by the Central Government of India in June 2010.[2] In late 2012, the government also initiated a process of phased deregulation of diesel prices by raising domestic retail prices by small amounts at regular intervals (about INR 0.5 a month).

For natural gas, two pricing mechanisms are used in parallel. The APM still determines the prices for gas produced from state-run companies (ONGC and OIL) from fields previously allocated to the companies at no cost. The second mechanism applies to non-APM or free-market natural gas produced domestically from joint-venture fields or for imported LNG. In order to enhance the affordability of natural gas in the energy-scarce north-eastern region of India, the Central Government has also pegged the price of natural gas for consumers there. Coal prices in India are not in alignment with international prices, and the Ministry of Coal and Mines, through the New Coal Distribution Policy, continues to control the allocation of coal supplies, particularly to priority sectors such as power generation and the production of fertilizer. Electricity tariffs are set by individual states, with several state electricity boards providing regulated rates to different

1 Diesel fuel, kerosene, and LPG, together account for almost two thirds of the total consumption of petroleum products in the country.

2 Although gasoline prices were officially deregulated in June 2010, the Central Government temporarily froze them again between December 2011 and May 2012. Oil-marketing companies can now periodically increase gasoline prices, though the changes remain subject to government approval.

sectors or consumers. Cross-subsidisation also occurs as above-cost tariffs are charged to commercial and industrial consumers and the railway sector, so that agricultural users and households can be charged less.

Taxes on energy production and use in India are generally levied at both the federal and state level. Upstream operations are taxable on a net income basis, with domestic companies being subject to an income-tax rate of 30% and foreign companies to a higher rate of 40%. An additional surcharge of 5% for domestic companies and 2% for foreign companies is also levied if taxable income exceeds INR 10 million. Coal sector operations are taxable under the country's Stowing Excise Duty (SED), which is levied by the Central Government on the total amount of raw coal dispatched every month from a given mine. Excise duties are also levied on the consumption of certain petroleum products, both on the basis of value and quantity, with certain petroleum products attracting other indirect taxes, such as an additional duty on gasoline and diesel, and a special additional excise duty on gasoline. No customs duties are applied to imports of crude oil, gasoline, LPG or kerosene.

While the Central Government taxes the manufacturing of goods (through a tax known as CENVAT), their imports into India, and the supply of services, states retain the right to tax goods at the wholesale or retail level. The only exception is the tax on interstate sales, known as the central sales tax (CST), and which is levied by the Central Government but collected and retained by the state of origin. Energy products are exempt from CENVAT but are subject to CST at a rate of 2% or at a rate equivalent to the local VAT rate in the state of origin. At the state level, a value-added tax (VAT) is levied on most sales of energy products with rates ranging from 5% to 33%, depending on the nature of the product and the state where it is sold. A goods and services tax (GST) is being considered to replace the current combination of VAT and CST, but its implementation is currently delayed due to lack of consensus between the Central Government and the states.

The coal sector attracts support through a range of budgetary support mechanisms, including support for the construction of infrastructure to help transport coal domestically, R&D schemes, as well as programmes favouring investment in conservation and safety equipment in coal mines. Measures encouraging the extraction of crude oil and natural gas within the framework of India's New Exploration Licensing Policy (NELP) include an excise-tax exemption on domestic production and an income-tax exemption provided to oil-producing companies for their first seven years of operation. On the consumption side, prominent examples of support are the fixed per-unit grants for kerosene supplied through the Public Distribution System (PDS) and for LPG cylinders intended for domestic use. The PDS is an "Indian food security system", established by the Central Government and managed jointly with state governments, that distributes subsidised food and non-food items to low-income households through a network of public-distribution shops. The IEA estimates price-driven consumer subsidies in India to be worth about USD 32 billion for petroleum products and USD 4 billion for natural gas in the year 2012 (IEA, 2013).

Data documentation

General notes

India is a federation comprising 35 sub-national jurisdictions[3] that possess a certain degree of freedom in setting prices for energy generation, transmission, and distribution. For this reason, there may be variations between central and regional authorities in the adoption and implementation of energy-related policies.

[3] The Republic of India currently consists of 28 states and seven Union Territories.

The fiscal year in India runs from 1 April to 31 March. Following OECD convention, data are allocated to the starting calendar year, so that data covering the period April 2005 to March 2006 are allocated to 2005.

Methodological note

A large part of support to fossil fuels in non-OECD countries (and in a few member countries such as Mexico) takes the form of price controls or regulations benefitting final consumers. In many cases, this occurs through the government mandating that state-owned oil and gas companies charge lower retail prices, thereby lowering the revenues these companies collect through sales of fuel. This often results in the government subsequently intervening to compensate state-owned oil and gas companies for the losses they incurred in the downstream sector due to the regulated prices, with this compensation taking many forms. Some governments choose, for example, to compensate national oil and gas companies through targeted tax concessions (e.g., VAT exemptions) or equity injections.

At present, this inventory does not attempt to estimate the amounts of support that regulated prices generate, and instead focusses on direct budgetary transfers and tax expenditures, including those benefitting national oil and gas companies. For that reason, some of the measures classified here under "Producer Support Estimate" may have been introduced by governments with a view to compensating domestic, vertically integrated oil and gas companies for the lower prices they are required to charge, resulting in these measures being connected to some extent to consumer support.

Estimates of the support directly conferred to final consumers by regulated prices are, however, available from the International Energy Agency (IEA), which estimates these induced transfers as part of its annual "World Energy Outlook" publication. Readers are therefore advised not to compare or add together the OECD and IEA estimates given the significant risk of overlap and double-counting this involves.

Producer Support Estimate

Upstream operators of oil and natural-gas exploration blocks in India are subject to a hybrid tax regime under production sharing contracts (PSCs), which comprises fixed and ad-valorem royalty payments, production sharing, and the recovery of contract costs (exploration, development, and production costs). In December 2012, the Central Government announced plans to reform the current PSC fiscal regime.

Some fiscal measures related to oil and natural-gas production may not constitute tax expenditures under an alternative baseline where resource taxes (or production taxes) vary with market conditions and production costs. This inventory uses the annual amounts of tax expenditures as reported in India's Union Budget.

Income-Tax Exemption for the Production of Crude Oil from NELP Blocks (no data available)

This tax provision was introduced by the government of India in 1999. It provided a 100% income-tax exemption for the first seven years of operation to companies engaged in the production of crude oil from blocks awarded in the first eight rounds of bidding under the New Exploration and Licensing Policy (NELP). This tax exemption aimed to encourage competition and entry of private players into the sector and has now been withdrawn for all blocks that have been awarded from the 9th round of NELP bidding onwards (i.e. blocks awarded after 31 March 2011).

Natural-gas producers were not covered by this exemption since the definition of "mineral oil" in the Income Tax (IT) Act does not include natural gas. It was only in the 8th round of NELP bidding that this definition was broadened to include companies producing natural gas, but the benefits were then restricted to blocks awarded solely under that particular round.

Although there are no official estimates of the revenue foregone due to this exemption, some broad estimates by the Independent Power Producers Association of India (IPPAI) have suggested that a removal of this measure could have reduced the net present value to businesses by USD 35 million per upstream project for small fields, and by USD 200 million per upstream project for large oil and gas fields, over the duration of the production phase. A total of 33 upstream projects were offered during the 9th round of NELP bidding process.

Sources: MoPNG, IPPAI, PwC (2013).

Excise-Tax Exemption on Sales of Domestic Crude Oil (no data available)

This tax provision was introduced by the government of India in 1999. It allows mineral oil producers to benefit from an excise-tax exemption on their domestic production of crude oil. The exemption on domestic crude oil production was initiated along with the New Exploration Licensing Policy (NELP) to encourage investment by both national and foreign companies in the upstream sector.

No estimates are available for this particular measure. This measure is allocated to the PSE since excise taxes on crude oil here refer to a particular set of production taxes.

Sources: CBEC (2012).

Stowing-Excise-Duty Exemption for the Development of Transportation Infrastructure in Coalfield Areas (data for 2004-)

This measure exempts certain coal- and lignite-mining companies from the stowing excise duty (SED) to help them develop road and rail transport infrastructure in coal field areas. The SED is levied by India's Central Government on the total amount of raw coal dispatched every month from a given mine, under the Coal Conservation Development Act (CCDA).

This measure is allocated entirely to hard coal given the low share of lignite in total coal production in India.

Sources: MoF (2012), Planning Commission (2011), Union Budget (various years).

Tag: IND_te_01

Stowing-Excise-Duty Exemption for Conservation and Safety in Coal Mines (data for 2004-)

This provision exempts certain coal- and lignite-mining companies from the stowing excise duty (SED) to help them finance conservation and safety improvements in coal mines. The SED is levied by India's Central Government on the total amount of raw coal dispatched every month from a given mine, under the Coal Conservation Development Act (CCDA).

This measure is allocated entirely to hard coal given the low share of lignite in total coal production in India.

Sources: MoF (2012), Planning Commission (2011), Union Budget (various years).

Tag: IND_te_02

Consumer Support Estimate

PDS Kerosene and Domestic LPG Subsidy Scheme (data for 2003-)

This provision was initially introduced in 2002 to provide fixed per-unit grants for kerosene sold through the Public Distribution System (so-called “PDS kerosene”) and for LPG cylinders intended for domestic use. The value of the grants is set on a specified flat-rate basis for each kerosene depot and LPG bottling plant, based on the difference between unit costs and the retail selling price (or “realised price”). This margin can be revised every two weeks by marketing companies on the basis of changes in the corresponding international prices. However, no such revisions have yet taken place since the introduction of the scheme, with only marginal increases being made in the case of LPG.

As of October 2013, in New Delhi, kerosene was sold by the Indian Oil Corporation at the rate of INR 14.96 (USD 0.25) per litre, and LPG used for domestic cooking at INR 410.5 (USD 6.82) per 14.2 kg cylinder. In January 2013, the Central Government set to nine the number of subsidised LPG cylinders eligible households can purchase in a year. This number was then increased to 12 in January 2014, a move that is expected to raise the total annual cost of the subsidy by INR 50 billion (USD 830 million). Subsidised kerosene is also rationed, with quantity allocations to states based on historical consumption. The scheme is financed through budgetary grants from the Ministry of Petroleum and Natural Gas.

Annual transfers related to this scheme are allocated to kerosene and LPG on the basis of estimates provided by the Ministry of Petroleum & Natural Gas.

In December 2012, the Central Government announced the introduction of a pilot project implementing a more efficient system for subsidising LPG cylinders and kerosene provided through the Public Distribution System (PDS) in 44 districts throughout the country. Under this pilot project, known as the Direct Benefit Transfer (DBT), fuel is to be sold at the market rate but beneficiaries get compensated in the form of a cash transfer credited directly into their bank accounts using the Aadhaar platform. Cash transfers are still linked to the number of LPG cylinders purchased, however.

As of March 2014, the Central Government has now suspended the DBT scheme, leaving in place the regular fixed per-unit grants. Because the DBT scheme still tied cash transfers to the purchase of fuel, 2012-13 estimates for these transfers are also included here and added to the amounts of support provided through the general LPG and PDS kerosene subsidies.

Sources: PPAC (2013a), PPAC (2013b), MoPNG (2013a), MoPNG (2013b), TERI (2012), Kojima (2013), PIB, The Times of India (2014), GSI (2014).

Tag: IND_dt_01

Subsidies to Oil Companies for Transporting Natural Gas to the Northeastern Region (data for 2011-)

This measure was enacted in 2002 and aims to increase the affordability of natural gas in the energy-scarce northeastern region of India. The Central Government has pegged the price of natural gas there to USD 2.52 per mmBtu, which amounts to 60% of the APM price of USD 4.2 per mmBtu. In order to

compensate oil companies for these lower selling prices and for the higher transportation costs involved, the Central Government provides them with an annual allowance.

This measure is allocated entirely to natural gas.

Sources: MoPNG (2013a).

Tag: IND_dt_02

Freight Subsidy Scheme to Remote Areas (data for 2003-)

This measure started in 2002 and compensates downstream oil-marketing companies (OMCs) for the additional costs they incur in transporting domestic LPG and PDS kerosene to remote areas of the country. These regions, known as "far-flung areas", include the northeastern states (except some districts in Assam), Sikkim, Jammu and Kashmir (except some districts), the Andaman and Nicobar Islands, and Lakshadweep. Compensation covers part of the freight costs up to the kerosene wholesale dealer and to the LPG distribution outlet. This measure has been extended until 31 March 2014.

Annual transfers related to this scheme are allocated to kerosene and LPG on the basis of the IEA's Energy Balances for India's residential sector.

Sources: PPAC (2013a), MoPNG (2013a), TERI (2012), PIB, IEA.

Tag: IND_dt_03

Compensation for Under-recoveries Incurred by Downstream Oil Companies (data for 2007-)

Differences between domestic and international prices for kerosene, LPG, and diesel fuel cause heavy under-recoveries for downstream oil-marketing companies (OMCs) in India. These under-recoveries are calculated based on the difference between the price at which an OMC desires to sell its products and the price at which it is mandated to sell the products (the realised price). In the case of kerosene and LPG, the fixed per-unit grants mentioned above are also subtracted (see "PDS Kerosene and Domestic LPG Subsidy Scheme" above).

The Central Government has thus put in place a mechanism that compensates OMCs for part of the under-recoveries they incur due to the regulated prices. The remaining portion of the under-recovery burden is then borne by the upstream public-sector oil companies (ONGC and OIL) and the public-sector gas transmission and distribution company (GAIL).

Under-recoveries on gasoline were accounted for until June 2010, at which time gasoline prices were officially deregulated. In late 2012, the Central Government also initiated a gradual process of deregulation of diesel prices, raising domestic prices by small amounts at regular intervals (about INR 0.5 a month). The process is meant to reduce the under-recoveries of OMCs in relation to diesel fuel while keeping the potential inflationary effects of sudden price increases under control.

Annual transfers related to this measure are allocated to gasoline (until 2010 only), kerosene, LPG, and diesel fuel on the basis of the IEA's Energy Balances for India's road, residential and agricultural sectors.

Sources: MoPNG (2013a), TERI (2012), PPAC (2013b), IEA.

Tag: IND_dt_04

Tax Differential for Coal, Crude Oil, Aviation Turbine Fuel and LPG Under "Declared Goods" Status (no data available)

This provision grants coal, crude oil, aviation turbine fuel, and LPG intended for domestic use the status of "declared goods" as energy commodities. "Declared goods" are a particular class of goods in India for which there are certain restrictions placed under the CST Act of 1956 on the imposition of sales tax or VAT by regional governments. States cannot charge sales tax rates exceeding 4% on such products.

Petroleum products are usually subject to VAT at rates ranging from 5% to 33%, depending on the nature of the product and the state where it is sold. Central sales tax is collected on sales that require the movement of goods from one state to another at a rate equivalent to the VAT rate in the state of origin.

No estimates of the revenue foregone due to this measure are available.

Sources: Union Budget (various years), GoI.

Rajiv Gandhi Gramin LPG Vitrak Yojana (data for 2010-)

This measure was introduced in 2009 to provide state-owned oil-marketing companies (OMCs) with annual transfers from the Central Government for improving their LPG distribution infrastructure in rural areas. Many states, such as Delhi and Tamil Nadu, also have incentive schemes linked to the Rajiv Gandhi Gramin LPG Vitrak Yojana (RGGLV) programme, through which they provide part or all of the initial deposit required to acquire an LPG connection, or the first LPG cylinder free of cost.

This measure is allocated entirely to LPG.

Sources: PIB, MoPNG (2013b).

Tag: IND_dt_06

General Services Support Estimate

Indian Strategic Petroleum Reserves Limited (data for 2012-)

In late 2004, the government of India decided to build a strategic storage of crude oil to provide a secure reserve of petroleum for the country that could be accessed in case of emergency. Crude-oil stockpile reserves have been transferred from Indian Oil Corporation Limited (IOCL) to the Indian Strategic Petroleum Reserves Limited (ISPRL), the controlling government agency for the strategic reserve, owned by the Oil Industry Development Board (OIDB). In 2013, the Central Government unveiled plans to establish three crude-oil storage caverns located at Visakhapatnam, Mangalore, and the Padur villages, with a total capacity of 5 million tonnes.

Some countries use stockpiling in order to meet their IEA obligations relating to energy security. Public provision of stockpiling does not, however, necessarily entail a transfer from taxpayers to the oil industry. In some cases, governments may charge the industry a fee to cover the costs associated with running storage facilities. In others, regulatory requirements may mandate the private sector to build and maintain the necessary stockpiles. In the case of the Indian Strategic Petroleum Reserve, support comes from the fact that the service the reserve provides is entirely government funded.

This measure is allocated to crude oil. It is classified under the GSSE since it benefits the oil sector as a whole and may also benefit consumers, depending on the value of the relevant elasticities. Estimates are only available starting in 2012.

Sources: MoPNG (2013b).

Tag: IND_dt_07

Grants Provided to State Oil Companies and Engineers India Limited (data for 2009-)

This measure consists of grants provided to Oil and Natural Gas Corporation (ONGC), Indian Oil Corporation Limited (IOCL), and Engineers India Limited (EIL) for encouraging their research and technology development activities in the oil and gas sector in India. Grants are provided through the Oil Industry Development Board (OIDB).

Annual transfers related to this measure are allocated to crude oil, gasoline, diesel fuel, kerosene, jet kerosene, and natural gas on the basis of the IEA's Energy Balances for the extraction and refining sectors.

Sources: Lok Sabha (2012), IEA.

Tag: IND_dt_08

Regional Exploration, Promotional Exploration and Detailed Drilling in Non-CIL Blocks (data for 2011-)

This measure provides the Central Mine Planning and Design Institute (CMPDI), the Geological Survey of India (GSI), and the Mineral Exploration Corporation Limited (MECL) with annual funding to increase their efforts in the preliminary exploration and detailed drilling of coal and lignite from blocks outside the purview of Coal India Limited (CIL).

In a first stage, GSI and CMPDI undertake regional and promotional exploration of coal and lignite reserves; in a second stage, detailed drilling is carried out in the potential blocks identified. The programme aims to assess the availability of coal and lignite in different areas in order to reduce the time lag between offering the blocks to prospective investors and the start of operations.

This measure is allocated to the GSSE since it benefits India's coal-mining sector as a whole.

Sources: Planning Commission (2011), Union Budget (various years).

Tag: IND_dt_09

Coal Research and Development Programme (data for 2011-)

This measure provides budgetary transfers in support of anticipated research and development programmes in the coal sector. It aims to promote clean-coal technologies, such as mineral processing of low volatile medium coking coals (LVMC), coal gasification, carbon capture and sequestration, as well as to identify coal blocks for coal-to-liquid projects. This provision is partly financed through the Internal and Extra-Budgetary Resources (IEBR) of Coal India Limited (CIL) and through Central Government budgetary support. Only the latter is here reported.

This measure is allocated to the GSSE since it benefits India's coal-mining sector as a whole and does not necessarily increase the current production or consumption of fossil fuels.

Sources: Planning Commission (2011), Union Budget (various years).

Tag: IND_dt_10

Coal Environmental Measures and Subsidence Control (data for 2012-)

The Central Government of India funds programmes to improve environmental conditions in old mined areas, particularly in the Jharia and Raniganj coalfields, implementing environmental measures for mitigation of the damage caused by mining operations carried out before the nationalisation of coal mines. This provision is partly financed through the Internal and Extra-Budgetary Resources (IEBR) of Coal India Limited (CIL) and through Central Government budgetary support. Only the latter is here reported.

This measure is allocated to the GSSE since it benefits India's coal-mining sector as a whole and does not necessarily increase the current production or consumption of fossil fuels.

Sources: Planning Commission (2011), Union Budget (various years).

Tag: IND_dt_11

Coal Sector Information Technology and Coal Controller (data for 2011-)

The Central Government provides budgetary transfers for establishing and maintaining the office of the Coal Controller, as well as for improving the information technology available to the coal sector. This includes the creation of a coal and lignite resource information system, a resource-depletion information system, integrated coal net application software, a GPS-based truck dispatched system, and a Geographical Information System (GIS) mapping.

This measure is allocated to the GSSE since it benefits the coal sector as a whole and does not necessarily increase the current production or consumption of fossil fuels.

Sources: Planning Commission (2011), Union Budget (various years).

Tag: IND_dt_12

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