August 2014

CRISIL Opinion

Falling crude, LNG, coal prices huge positive for India

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India's import pain to ease as energy prices fall

Declining conventional fuel prices due to supply glut, slowing demand and shift to cleaner fuels augur well for India's import bill, says CRISIL Research

SYNOPSIS:

- On the supply side, we see a significant spurt ahead, resulting from investments made over the past decade in the development of new – and unconventional - reserves of crude oil, LNG and coal around the world
- On the demand side, slowing economic growth, particularly in major importing countries such as China and India, improving energy efficiency and focus on renewable sources, will curb growth
- Prices of these commodities are, therefore, expected to decline over the next five years
- For India, which is energy-hungry and imports a big chunk of its fuel needs, this is a good turn of events. We expect growth in India's energy import bill to drop to 1.6% CAGR over fiscals 2014-2019, from 14% CAGR in the last five

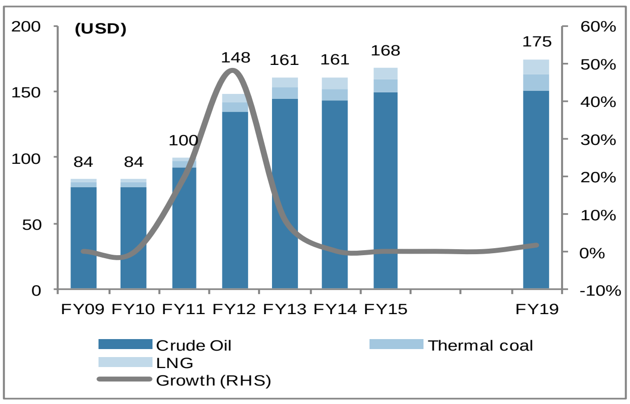
CRISIL Research believes India's import bill will grow significantly slower in the next five years than it has in the last five as prices of crude oil, thermal coal and liquefied natural gas (LNG) come under pressure, mainly from a rush of supplies globally.

Between fiscals 2010 and 2014, the fuel import bill grew 14% a year (CAGR) because of rising prices and healthy growth in import volumes, especially of coal and LNG. Together, fuel imports comprised the single largest item on India's import bill, accounting for 36% of the $450 billion import bill in fiscal 2014. But over the next five fiscals, this growth rate is expected to slow to 1.6% due to lower prices and relatively modest growth in volumes.

Declining prices will also help in reining in oil subsidies, thereby easing the pressure on oil companies and the exchequer.

Here's how we see all this unraveling.

India's energy import bill



Source: Ministry of Commerce, CRISIL Research

Impact of fuel prices on India's import bill

Commodity	Reduction in import bill ($ Mn) for $1 fall in prices
Crude Oil ($/barrel)	1,387
LNG ($/mmBtu)	124
Coal ($/tonne)	611

Source: CRISIL Research

COMING UP, A DELUGE OF SUPPLY

Crude oil

Over the next five years, we expect global oil demand to increase by 4-4.5 million barrels per day (mbpd). However, crude oil supply is expected to increase by 8-10 mbpd. This, we believe, will bring down prices from current levels.

Price, investment cycles turning

Crude oil has witnessed accentuated cyclicality with intermittent bouts of overinvestment and underinvestment over the years.

Between 1973 and 1986, when crude oil prices were rising, the players made huge investments in exploration, leading to a sharp increase in proven reserves of crude oil (see chart). But as supply started running ahead of demand, prices came under pressure.

Between 1987 and 1999, therefore, exploration activities slowed down and the pace of reserve accretion became sluggish. This saw oil prices rising post-2000, spurring investments again.

Between 1998 and 2013, a whopping $5.9 trillion was invested, leading to a reserve accretion of 595 billion barrels during this period compared with 356 billion barrels over 1983-1998.

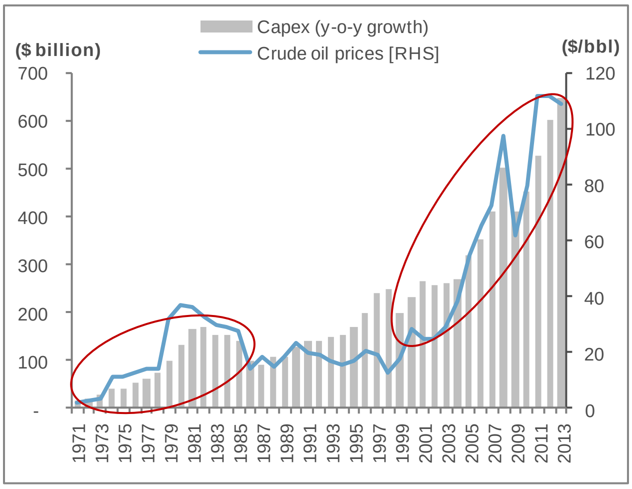
History suggests a phase of lower prices is at hand.

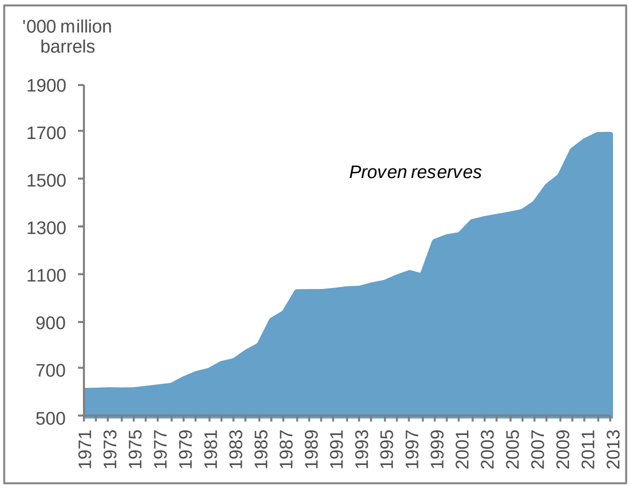
Among other factors putting pressure on oil prices is the coming on stream of unconventional reserves such as shale, deep water and oil sands. Exploration and development of these resources involves much higher costs compared with conventional oil reserves, and would not have been viable but for the high levels of prices seen in the past few decades.

The escalation in upstream capital spending is bearing fruit with several discoveries and reserve accretions converted into new production, particularly in North America and Iraq.

Moreover, with increase in cash flows due to high oil prices, upstream companies have also been able to invest in IOR/EOR (improved oil recovery/ enhanced oil recovery) activities to reduce declines from matured fields.

Trend in oil prices, investments and addition to reserves





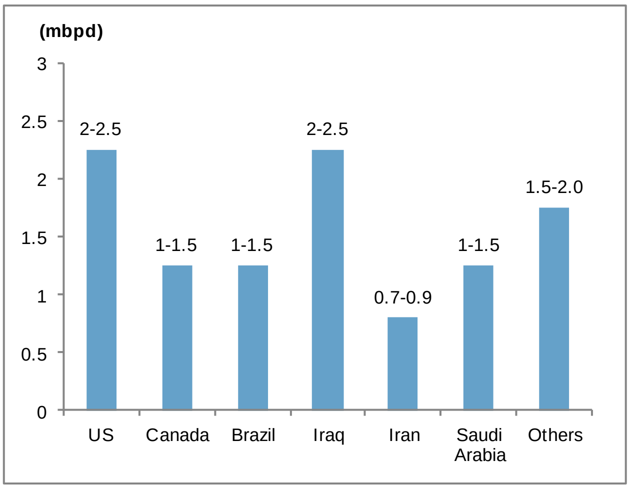
Source: Industry, BP Statistics, CRISIL Research

MENA and North Amercia to lead supply addition

Going forward, we expect significant supply to come on stream from the Middle East & North Africa (MENA) and North America regions.

The geopolitical tension in the Middle East notwithstanding, we expect the region to add around 5-5.5 mbpd of supply over the next five years, led primarily by Iraq, Iran and Libya. In Iraq, two significant projects by global oil majors in the country's southern region will lead to an incremental production of 2-2.5 mbpd by 2018. Moreover, the gradual easing of geo-political tensions in Iran and Libya will ensure their production rebounds to 4.4 mbpd and 1 mbpd respectively, a combined increase of ~2 mbpd (*see box below: Global majors to the rescue of Iraqi assets*). Another 3-3.5 mbpd will be added in North America through Shale oil (USA) and Oil sands (Canada) by 2018.

Middle-East, North America to drive oil supply between 2014 and 2018



Source: CRISIL Research

Major recently commissioned and upcoming projects

Project	Country	Start-up	Capacity (mbpd)	Estimated investment (in USD billion)
West Qurna Expansion II	Iraq	2013	1.8	n.a.
Majnoon	Iraq	2013	1.8	50
Presalt production	Brazil	2016	1.0	n.a.

Source: Company reports, CRISIL Research

Global majors to the rescue of Iraqi assets

In case of Iraq, despite the civil unrest caused due to violence inflicted by the Sunni muslims of Islamic State (previously Islamic State of Iraq and Levant -ISIL), a significant disruption in supply (both existing and incremental) seems improbable. This is because the likelihood of Islamic State progressing towards southern Iraq, which has about 65-70% of the country's oil production and reserves, seems minimal. For one, that part of Iraq is dominated by Shia Muslims who do not support Islamic State. Further, given the presence of global oil & gas majors such as Shell, Exxon, Gazprom, Lukoil and Petrochina in the country, the Iraqi government is likely to receive support from international community if tensions escalate. As a result, we expect production from Iraq to increase by about 2-2.5 mbpd by 2018 to 5.1-5.6 mbpd. In fact, Iraq's own production estimates are close to 12 mbpd per annum.

Easing of sanctions to boost supplies from Iran

In case of Iran, production is expected to return to the pre-sanctions levels of 4.4 mbpd from current levels of 3.1 mbpd as Iran is expected to co-operate with the international community after the change of regime post-elections. This is because, over the last two years, Iran's economy has been severely impacted by sanctions. In 2012 and 2013, Iran's GDP registered a negative growth, inflation rose more than 60% cumulatively, and Iranian Rial depreciated by more than 85% cumulatively. Since Iran's economy is oil-dependent, with oil exports contributing to ~85% of total exports, it will have to increase its oil exports to repair its economy.

Oil production in Libya to pick up and remain at 1 mbpd by 2018

In Libya, where production declined to 0.2 mbpd in March 2014, we expect production to at least reach 2013 levels of 0.9 mbpd by the end of 2014 as rebels have handed over some of the ports to the government. Minimum production in Libya is expected to remain close to 1 mbpd over the next five years.

Thermal coal

Like crude oil, thermal coal will see strong supply additions and an easing of transportation bottlenecks, which will keep the market over-supplied.

Over 2008-2013, Chinese and Indian coal imports (~40% of total imports) surged at a CAGR of 40% as their domestic coal production was limited by evacuation constraints and clearance delays.

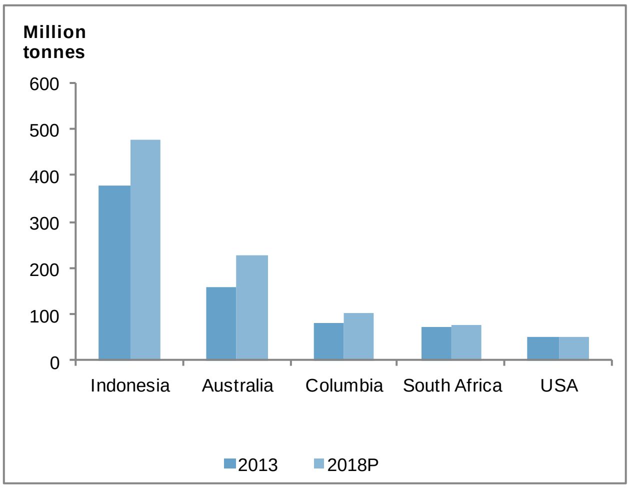
In anticipation of continued import demand from these countries, miners in exporting countries such as Indonesia and Australia (57% of total exports) ramped up investments for developing new projects. For instance, in Australia, coal mining investments (including coking coal) are estimated to have doubled to about $50 billion over 2009-2013 from about $25 billion over 2003-2008.

Driven by these investments, global thermal coal export growth is expected to remain healthy at 3.5% CAGR over the next five years.

At the same time, domestic coal supply in China (25% of global coal trade) is expected to improve due to an expansion of railway capacity for coal haulage by a third (3 billion tonne in 2020 from 2.26 billion tonne in 2012). This will ease transportation bottlenecks between the coal producing regions in the north such as Shanxi and Inner Mongolia and the major demand centres in the south. Thus, Chinese coal imports are expected to slow down, resulting in global coal imports dropping to a compound annual growth rate (CAGR) of 3.2% over 2014-18 compared with 7% over 2008-13.

Consequently, the ramp-up in exportable surplus by Indonesia and Australia will result in a sustained surplus in global coal markets over the next five years.

Outlook from major exporter-nations



Source: CRISIL Research

Major upcoming supply projects

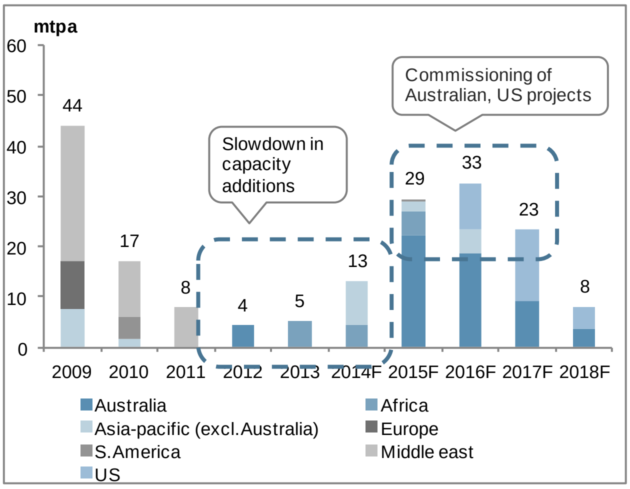
Project	Country	Start-up	Capacity (mtpa)	Estimated investment (in USD billion)
Ravensworth North (Stage 1)	Australia	2013	8.0	1.4
Ulan West	Australia	2014	6.7	1.3
Rolleston (phase 1)	Australia	2014	3.0	0.4
GMEP	S. Africa	2012	14.0	1.0
P 40	Columbia	2013	8.0	1.5

Source: BREE, CRISIL Research

LNG

Unlike crude oil and coal, the global LNG market is expected to remain tight, particularly in 2014, due to limited new supplies. But capacity addition at LNG export terminals, which was muted during 2010-2013, is expected to pick up from 2015, leading to improved supplies. As against a demand growth of 60 million tonne over 2014-18, we believe about 100 million tonne of new capacities would get commissioned. These capacity additions will be driven by Australia, which is expected to account for half of the incremental additions over the next five years. From 2016, even the US is expected to start LNG exports, with the commissioning of the first train (4.5 mtpa) of its 18 mtpa Sabine Pass LNG terminal.

Capacity additions in liquefaction terminals



Source: GIIGNL, CRISIL Research

Major upcoming supply projects

Project	Country	Start-up	Capacity (mtpa)	Estimated investment (in USD billion)
Queensland Curtis LNG	Australia	2014	8.6	20
Gorgon LNG	Australia	2015	15.6	52
Australia Pacific LNG	Australia	2015	9.0	25
Sabine Pass LNG*	USA	2016	18.0	8

*Does not include development of gas fields

Source: BREE, CRISIL Research

DEMAND IN STRUCTURAL SLOWDOWN

Crude oil

Crude oil, which met one-third of global energy demand in 2013, is expected to witness a structural slowdown in demand growth going forward. Despite higher GDP growth *(refer to annexure for GDP growth outlook for major energy consumers)*, oil demand from OECD countries is set to decline at 1.1% CAGR over 2013-2018 due to increase in efficiencies and shift to cleaner fuels. Demand growth from non-OECD nations will also slow down due to slowing economic growth in these nations coupled with reduction in subsidies on petroleum products in major markets such as China, India and certain Middle-East nations. Consequently, incremental demand for crude oil over 2014-2018 is expected to slow down to 4-4.5 mbpd compared with 5.3 mbpd over 2008-2013.

Thermal coal

The expected slowdown in the Chinese economy, coupled with a shift away from coal to cleaner fuels, will hurt thermal coal demand since it is the largest consumer (53% in 2013) in the world. China has targeted reducing the share of thermal coal in its primary energy mix to 65% in 2017 (67% in 2012). Further, coal demand from developed countries is expected to remain muted going forward due to policy actions discouraging coal use. Consequently, despite healthy demand growth from large importers such as India and South Korea, global coal demand growth is expected to slow down to 3.2% CAGR over 2014-18 from 3.9% CAGR over 2008-13.

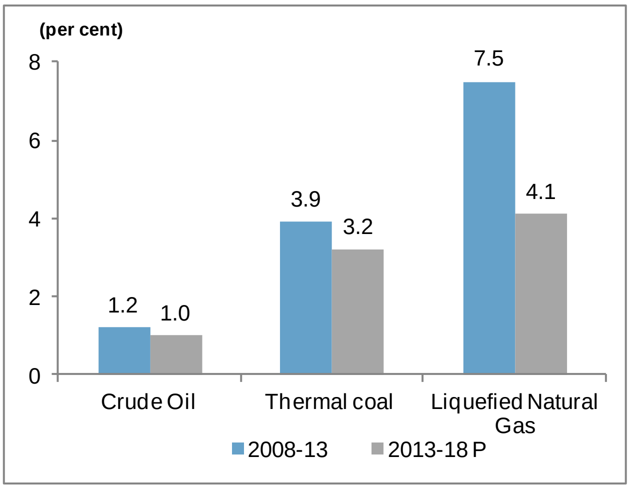
LNG

LNG demand is also expected to slow down due to muted demand growth from Japan and South Korea (~50% of global LNG trade) due to high utilisation levels at existing gas-based power plants, limited capacity additions and a gradual restart of nuclear capacities. Moreover, demand from India and Europe will be muted on account of the surge in LNG prices over the last three years due to rising demand and limited supplies. Consequently, despite Chinese LNG demand doubling to 37 mtpa by 2018, LNG demand growth is forecast to slow down to 4.1% over 2014-18 from 7.5% in 2008-13

Clean-fuels push also telling on demand

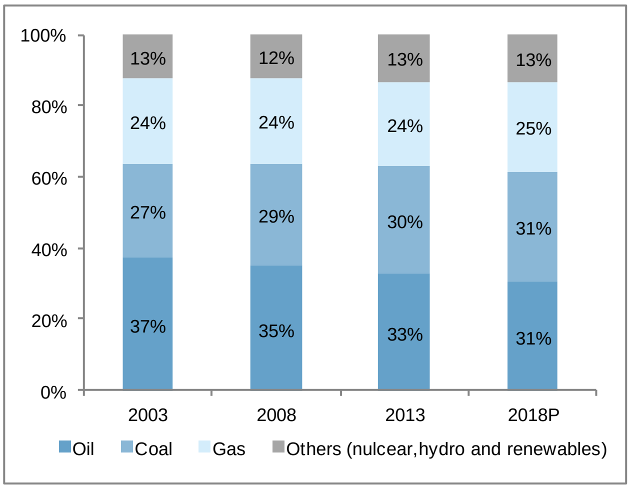
Further, while renewable energy capacity additions in Europe are expected to be muted, there is a sustained regulatory push in other major energy consuming countries to increase the share of renewable energy sources such as solar, wind and hydropower in their primary energy mix, which will further limit demand for conventional fuels. For instance, in the solar power sector, China plans to increase its installed capacity five-fold to 35 GW by 2015 under the ‘Building Integrated Photo-voltaics (BIPV)’ and ‘Golden Sun’ programmes, while Japan targets quadrupling its installed capacity to 28 GW by 2020.

Demand growth outlook



Source: CRISIL Research

Clean energy focus to boost share of gas, low cost to drive up share of coal



Source: BP Statistics, CRISIL Research

PRICE OUTLOOK DIMS

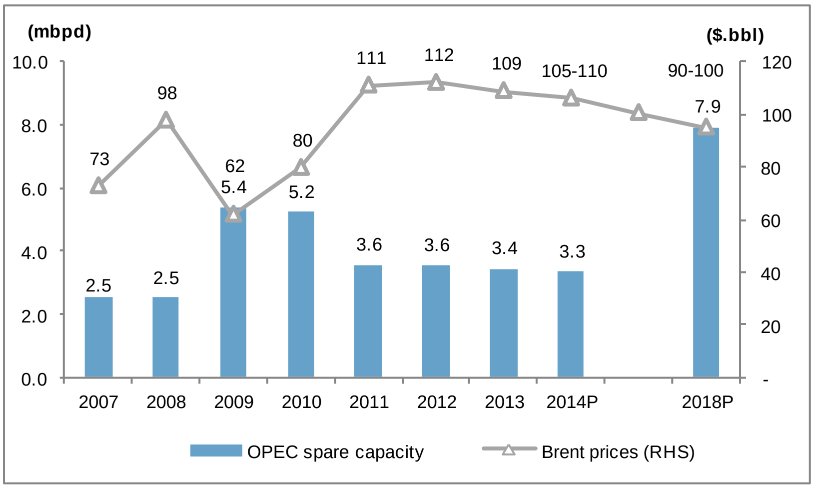
Crude oil

OPEC spare capacity limits upside scope

With significant increase in supplies, we expect the OPEC spare capacity* to increase to 8 mbpd by 2018 from 3.4 mbpd in 2013, even after assuming 1-1.5 mbpd of oil disruptions globally. As a result, we expect prices to come under pressure and decline to $90-100 per barrel by 2018. Even at these prices most of the costlier sources like shale oil, deep water, oil sands, etc. will fetch reasonable returns as the marginal cost of production is ~$70-75 per barrel.

*(*The US Energy Information Administration (EIA) defines spare capacity as the volume of production that can be brought on within 30 days and sustained for at least 90 days. OPEC spare capacity acts as an indicator of the tightness of global oil markets. For instance, low levels of spare capacity will lead to higher crude oil prices and vice versa.)*

Spare capacity vis-a-vis oil prices



Source: BP Stats, CRISIL Research

Prices under pressure despite geopolitical tension

Crude prices slumped to their lowest level in over a year in the week ended August 15th despite the violence sweeping the Middle East. Brent closed at $102 per barrel – indicating the downward pressure on prices.

Indeed, the high prices over the last three years may be a thing of the past already. Even supply disruptions of 1.5-2 mbpd in multiple countries (Libya, Iran, Nigeria, Syria, Sudan/ south Sudan, etc) since 2011 have not caused any sustained spike in prices. Oil prices have spiked only for the short term, while average prices for the full year have remained firm or declined marginally. Even during the current tensions in Ukraine, Iraq and Libya, the oil prices have not breached the $117 per barrel mark, whereas, during earlier conflicts in the Middle East, we have experienced a 9-15% increase in oil prices for every 1% disruption in oil supply.

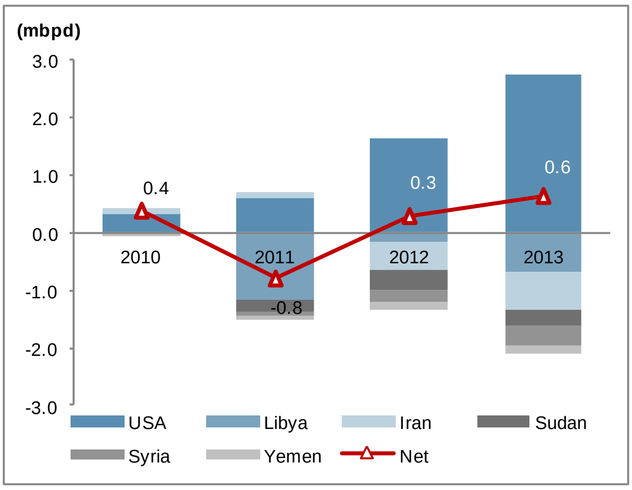
Prices declined in 2013 despite supply disruptions in MENA...

Event	Period	Supply disruption*	Increase in crude oil prices	Increase/ Decline per 1% disruption in supplies*
Iranian revolution /Iran - Iraq war	1978-81	10%	150%	15%
Iraq Kuwait war	1990-91	7%	65%	9%
War in Iraq	2003	2.9%	25%	9%
Middle East tensions	2013	2.2%	-2.8%	-1.3%

*Note: Disruption as a % of global demand

Source: CRISIL Research

...because rising production in the US and Iraq compensated



Source: OPEC, EIA

With supply increasing from OPEC as well as non-OPEC countries, the impact of supply shock on oil prices is expected to be lower in future. The past year saw fresh supplies offset supply disruptions and given the increase lined up, we expect some pressure on prices from current levels even if some disruptions continue in the MENA region.

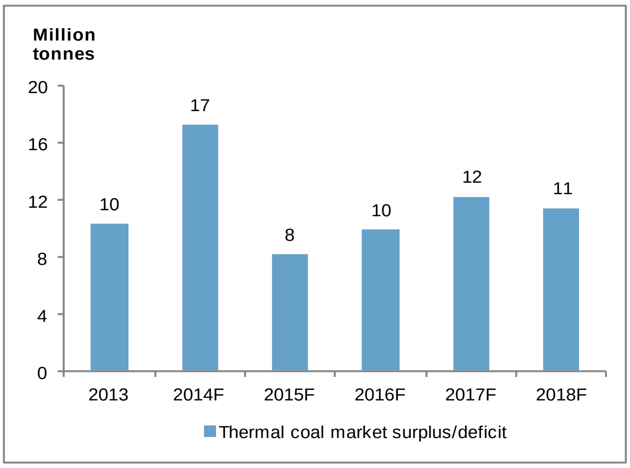
Thermal coal

Even thermal coal prices are expected to be under pressure due to slowing import growth and improving supplies. Assuming no major regulatory curbs on supplies (such as the proposed ban on coal exports by Indonesia, which we do not expect to be implemented given Indonesia's reliance on the mining sector revenues), we expect thermal coal markets to remain in a sustained surplus scenario over the next five years.

Further, prices would also be impacted by the depreciation of national currencies in exporting nations such as Australia.

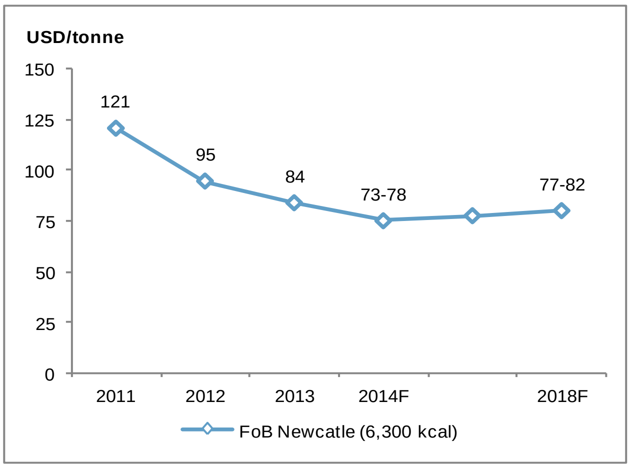
Consequently, we expect thermal coal prices (FoB Newcastle, 6,300 kcal/kg) to decline to $73-78 per tonne in 2014 and rise marginally to $77-82 per tonne by 2018. However, prices would remain significantly low compared with an average $94 per tonne recorded over 2008-2013.

Outlook on trade balance of thermal coal



Source: CRISIL Research

Outlook on thermal coal prices



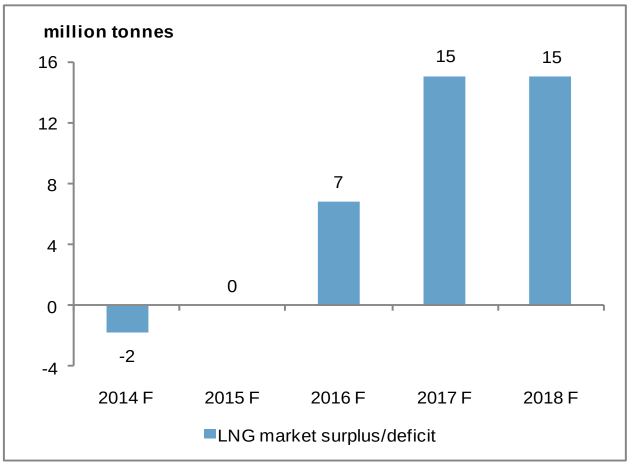
Source: CRISIL Research

LNG

Bucking the trend somewhat, spot LNG prices are expected to remain at elevated levels of $15-16 per mmBtu (delivered Ex-Ship – India) in 2014, thanks to tight supply.

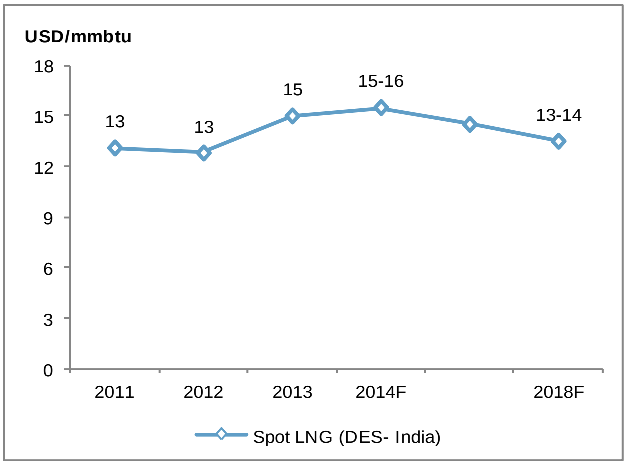
But post-2015, with the market turning surplus, we expect prices to drop to $ 13-14 per mmBtu by 2018.

LNG market surplus/deficit



Source: CRISIL Research

Outlook on spot LNG prices



Source: CRISIL Research

BUT THE DROP WON'T BE SHARP

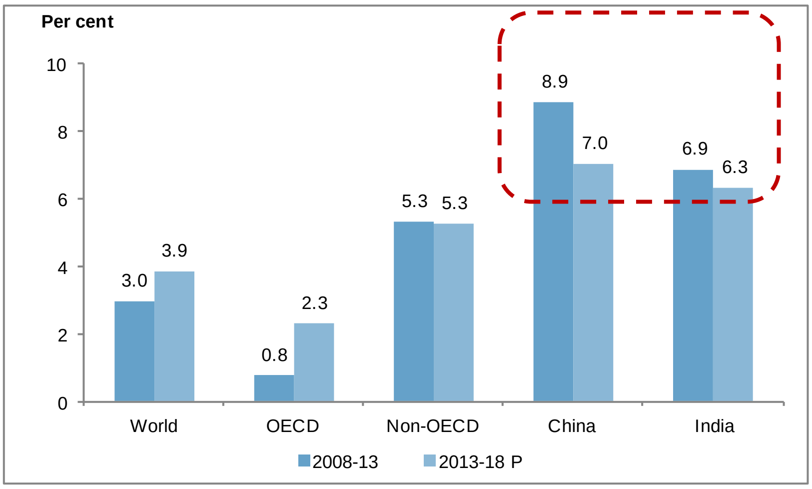
While global fuel prices are expected to be under pressure, their decline would be restricted by rising production costs.

The high development cost of unconventional crude oil supplies such as Canadian oil sands, estimated at $70-75 per barrel, would limit the fall in crude oil prices.

Similarly, high capital costs imply that the upcoming Australian LNG terminals require a freight on board, or f.o.b, price of about $12 per mmBtu to break even, which will provide a floor to LNG prices. Moreover, increasing taxes and royalty rates, such as the 'Minerals Resource Rent Tax' in Australia and the proposed hike in royalty rates for smaller coal miners in Indonesia with IUP mining permits (~25% of production in 2013), will lead to higher costs and limit the decline in thermal coal prices.

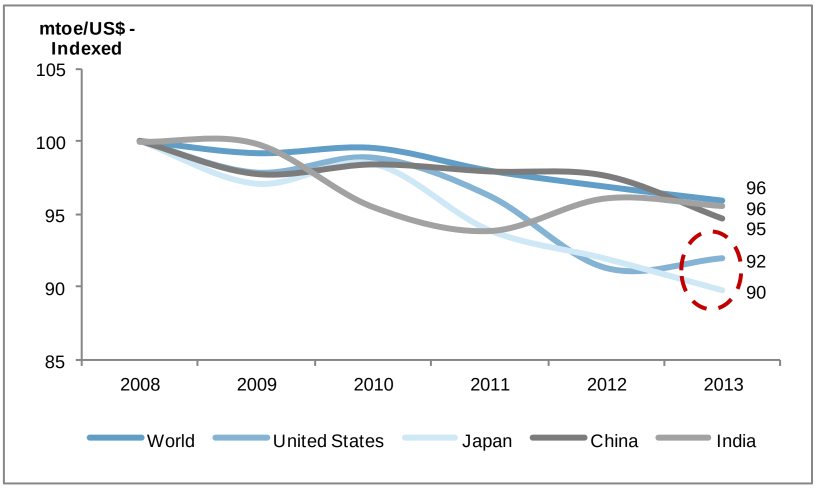
Annexure:

1: GDP growth in OECD nations to pick up; Emerging economies to witness a slow down



Source: IMF

2: Rising energy efficiencies in major energy consuming nations limiting energy demand



Source: IMF, BP Statistics, CRISIL Research

3: OECD members

Australia	France	Korea	Slovenia
Austria	Germany	Luxembourg	Spain
Belgium	Greece	Mexico	Sweden
Canada	Hungary	Netherlands	Switzerland
Chile	Iceland	New Zealand	Turkey
Czech Republic	Ireland	Norway	United Kingdom
Denmark	Israel	Poland	United States
Estonia	Italy	Portugal	
Finland	Japan	Slovak Republic	

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