



# Weaving the 'Golden Thread' of sustainable energy

Dev Sanyal

Chief executive of alternative energy and executive vice president, regions

---

20 June 2019



## Introduction

Good morning.

It is an honour to be here at Brookings India. I know how much your expertise and independent advice is valued here.

And it is a pleasure to be back in New Delhi.

I thank Chairman Vikram Singh Mehta for the invitation to participate.

And I look forward to discussing the vital role that India can, and indeed must, play in the energy transition.

It is a transition that is moving fast, in an ever-changing world.

As the Canadian Premier Justin Trudeau said at the World Economic Forum, the pace of change “has never been this fast ... yet it will never be this slow again.”

I recall at that meeting in Davos much discussion about the changes and challenges facing the world...

In politics and the global economy of course.

But also, in energy – and how the world can balance the need to create more energy to fuel prosperity, with fewer emissions to help address climate change.

This dual challenge goes to the heart of what former UN Secretary-General Ban Ki-moon said about the provision of sustainable energy.

He called it “the golden thread that connects economic growth, social equity, and environmental sustainability.”

And nowhere is that challenge felt more than in Asia, and increasingly here in India.

India is, to a large extent, is the world in a microcosm.

It has a predominantly hydrocarbon-based energy system.

It has millions of people who are improving their lives.

And increasingly it has the tools to reset the energy mix with more low-carbon fuel and power.

That is why I believe India is uniquely placed to weave the golden thread that is so vital to human development.

To achieve that it should revisit the successes of its past, reevaluate energy priorities in light of the transition taking place, and reimagine the possibilities that exist in the future.

## Revisit past successes

If we start by revisiting the past, we must remember that every economy requires access to sources of energy to underpin its development and grow its prosperity.

Access to affordable and reliable energy is fundamental to reducing poverty, improving health, increasing productivity, enhancing competitiveness and achieving social justice.

Throughout history, energy and economic development have been deeply inter-twined.

Coal powered the great steam engines of the 19th century industrial revolution and the electrification of towns and cities around the globe.

Oil transformed the mobility of people and goods in ships, aeroplanes and motor cars.

Oil also gave birth to the petrochemical industry which is today an indispensable part of our economy – but often overlooked.

From plastics to textiles – from the laptops we work on to the clothes we are wearing today – the oil or gas molecule is often involved.

And in the modern era, natural gas and renewable energies are playing a major role in the transition to a low carbon energy future.

Energy represents about 10% of the global economy – and it is a 10% that underpins the other 90%.

In more developed economies, we often take for granted the light obtained at the flip of a switch, heat supplied at the click of a dial, and mobility provided at the turn of a key.

But in the world's great emerging economies, energy is never taken for granted. Certainly not in India.

## Prosperity

Here there is an acute understanding of the benefits energy can bring to people's lives.

You only have to look back over the last 30 years to see that.

In that time life expectancy has risen globally by an average of seven years. But India's has risen by 10 years.

Globally, GDP has more than tripled, from under \$20 trillion to well over \$70 trillion. But in India, GDP has increased nearly tenfold.

We've seen millions of people moving into professional jobs as new industries spring up.

## Silicon Valley of the East

And of course, IT is the epitome of this.

When I left India to study in the US the country had no meaningful IT industry to speak of.

Fast forward to today and we see Indians leading the way – with Bangalore home to the Silicon Valley of the East.

And it is not just IT.

Growing up, I recall car ownership as a luxury. And that once a car was paid for it could take up to a year to receive the vehicle.

Whereas today, India is the world's fourth largest car manufacturer.

In the 1970s there were just 1 million wired telephones in the country.

Today there are 660 million mobile phone users in India – that's twice the number of people living in the United States of America.

## Make it happen

All this goes to show the entrepreneurialism, ingenuity and can-do attitude that exists in India.

We hear a lot about the importance of 'Make in India', but it is also clear that there is also a culture to 'Make it happen' as well.

This attitude serves the country well and it is why I believe India can weave the golden thread Ban Ki-Moon spoke about.

India is working hard to spread the benefits of a growing economy among its population of more than 1.3 billion.

Yet challenges still exist.

This economic growth is fuelling rising energy consumption, which increased by nearly 8% in 2018.

Longer-term, while countries like the UK have seen energy consumption fall since 1980, India has seen it rise eight-fold.

But around 30% of the population do not currently have access to modern sources of energy.

And as energy use increases, so greenhouse gas emissions also continue to rise – as they will until we derive more energy from lower-carbon sources.

## Reevaluate energy needs

So, how should India re-evaluate its energy landscape?

At BP, we study very closely the trends shaping energy through our highly regarded Energy Outlook scenario planning work.

On current trends, we expect that energy demand will increase by around a third over the next 20 years.

It shows that India, on current trends, will overtake China as the largest growth market for energy by the mid-2020s, driven by rising productivity as well as the rising population.

## Human Index and role of efficiency

BP's economics team also discovered some fascinating insights into the link between energy and human development.

Their work showed that increases in energy consumption up to around 100 Gigajoules (GJ) per head are associated with substantial increases in human well-being, but that around 80% of the world's population live in countries where consumption is below that benchmark. That includes India with its consumption of 24 gigajoules per head

## More energy

On current trends, there will still be two-thirds of people living in countries with average energy consumption below the 100 gigajoules threshold by 2040.

But, as our Energy Outlook shows, that number could drop dramatically to one third of the global population if global energy use grew by an extra 25% by 2040.

This creates a dilemma, because where consumption increases, emissions tend to follow.

However, there are many countries who far exceed the 100 gigajoules threshold.

And since the link between living standards and energy reduces above 100 gigajoules there is a strong argument for those countries to reduce their consumption per head.

So, one could envisage a kind of global pact in which the energy-rich countries pledge to become more energy efficient and in return countries like India pledge to increase its own energy use in a way that is as efficient and environment-friendly as possible.

That's all in line with the golden thread ambition of increasing the well-being of millions of people while preserving the health of the planet.

That is one way to reimagine energy that would have a very positive impact in India.

## Reimagine energy

As we've learned from the past, and as I said before – India has a history of making things happen for itself.

Whether that's rising to become the fourth largest car manufacturer...

The fourth nation to land on the moon...

Or a leader of the fourth industrial revolution...

Its people can achieve anything.

As we've seen in energy – anything is possible too.

From planes fuelled by banana skins to solar-powered satellites in space and purpose-built energy islands - there are many ways to reimagine energy.

On a more practical level India is taking a leading role in addressing climate change.

It is setting an ambitious renewable energy target to install 175 GW of capacity by 2022, up from 17 GW in 2016.

And it is bringing about necessary structural reforms and promoting the right kind of business environment, through initiatives such as 'Startup India' and the 'Atal Innovation Mission'.

Yet, with India's share of global emissions seeming set to rise from around 7% to 13% by 2040, more action is needed.

So how can India achieve that feat of increasing energy while limiting emissions?

I see four priorities for action.

## Growing gas

The first of these lies with natural gas.

BP estimates that India has a domestic gas resource potential of more than 100 trillion cubic feet (Tcf) which includes conventional, unconventional, and yet-to-find gas.

This resource base has the potential to meet up to 50% of anticipated demand for gas (consistent with two-degrees) through 2050.

Developing India's domestic gas production will help reduce energy imports, improving energy security as well as enabling more investment and creating jobs.

And the crucial point here is that natural gas has a much lower carbon intensity per unit of energy than coal.

Gas substitution also offers significant benefits for air quality through reduction of airborne particulates and pollutants such as nitrogen and sulphur oxides.

Longer-term, natural gas can be decarbonised to produce hydrogen as an energy vector – using carbon capture, use and storage (CCUS).

BP is partnering with Reliance Industries to develop new offshore gas projects in India that we expect to bring online in the next few years.

This will increase India's gas production by 25-30% from current levels.

## Ramping up renewables

The second priority is in renewable energy. There are large untapped solar and wind resources in India which have the potential to be exploited at costs which are becoming increasingly competitive with fossil fuels.

By 2050, onshore wind could offer the lowest cost of supply, even when taking in to account integration costs.

As such these renewable resources could be further exploited to meet future demand growth and progressively displace coal in electricity generation.

That's important as power demand is on course to increase three to four and a half times up to the middle of the century.

## Electric expansion

As a third priority, electrification of the vehicle fleet and substitution of liquid fuels with CNG or LNG present significant opportunities for India.

BP's analysis indicates that light-duty electric car costs (on a total cost of ownership basis) could converge with conventional vehicles from 2035.

Electric two- and three-wheel vehicles are close to cost parity today.

CNG is already competitive in medium and heavy-duty vehicles and LNG is attractive for long-distance trucking.

And the electrification of buses, which follow established routes in urban areas, could become cost-competitive by 2030.

## Driving digital

The fourth priority is to apply India's strength in digital innovation to energy. Digital technology is helping to transform and optimize the energy system and has the potential to reduce demand in India by as much as 18% by 2050.

It can do this in transport, for autonomous vehicles, ride-sharing and intelligent traffic management systems.

In buildings, through the adoption of smart demand management, including smart homes, smart meters, connected infrastructure and energy management systems.

In industry, with robotics, connected devices, advanced analytics and smart systems.

And in transmission & distribution, through smart grid technologies, including micro grids, virtual power plants, and demand response systems.

## Conclusion

Through the adoption of these priorities, I believe that India could position itself as a leader in the energy transition. As a recent article from Brookings India noted: "every step helps, especially India-sized steps".

And with a relationship that dates back over 100 years, BP will continue to help India on this journey.

We will do that in the upstream, with production from existing declining fields, pursuing development of discovered resources, focused exploration and access to a growing gas market.

We will do it through our strategic alliance with Reliance Industries Limited (RIL) which combines BP's world-class deepwater exploration and development capabilities with RIL's project management and operations expertise.



We will jointly explore options to develop fuels, mobility and advanced low carbon energy businesses in India as the country transitions to a low-carbon world.

And we will do it through Lightsource BP - one of the world's leading solar developers and operators.

Last year the company announced a joint venture with Everstone Group in India to manage the Green Growth Equity Fund, which aims to bring up to \$1 billion dollars of investment through contracted power, distribution infrastructure and energy services.

And, of course BP will continue to look for new partnerships and strengthen existing ones in service of India's increasing role in the energy transition.

One that sees the country weaving the golden thread that connects economic growth, social equity, and environmental sustainability.

Thank you.