

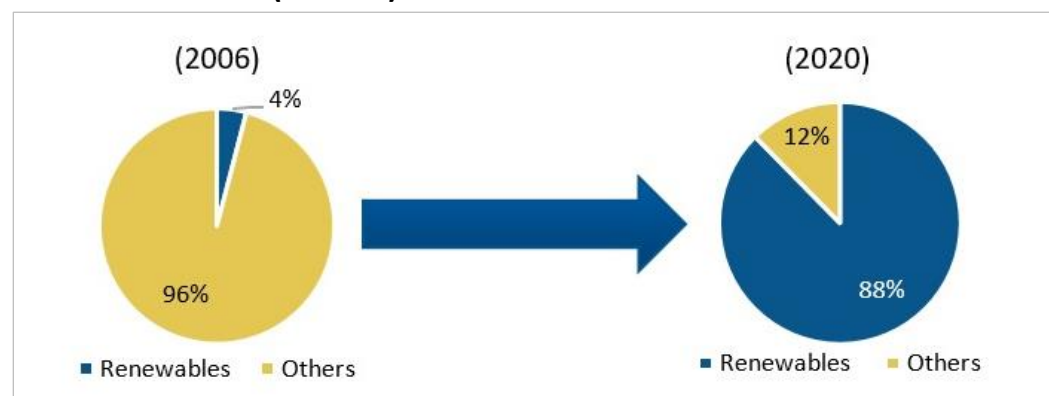
From Dong to Orsted: A Leading Utility's Green Energy Transition

What Indian Firms Can Learn from Such a Transition

Executive Summary

This report charts the transition journey of Orsted. This Danish state-owned utility transitioned from being one of the most coal-intensive utilities in Europe to a global leader in offshore wind energy. The report further analyses examples of Indian utilities moving towards the path of green energy transition and renewable energy companies aiming to scale up rapidly, and what they can learn from Orsted's journey.

Figure 1: Transformation of Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) Contribution¹



Source: IEEFA analysis; Orsted annual report 2006 and 2020.

During Orsted's journey of more than a decade, it has created immense shareholder wealth, as its market capitalization² zoomed by 314% since its listing in 2016, a feat that can be attributed to its successfully planned transition strategy, along with transparent sustainability-related disclosures. This is a unique example where an enterprise has been able to fulfil its goal of dramatic shareholder wealth creation while radically transforming its business model, something which many energy companies around the world are trying to emulate. Orsted's board and management have kept a sharp focus on delivering on its energy transition commitments over the years. In 2012, the company faced considerable financial challenges due to weakness in the gas markets, which saw its CEO change. This was followed by Goldman Sachs and Danish pension funds ATP and PFA coming on board as

¹ EBITDA contribution calculated as per non IFRS numbers in 2020.

² Refinitiv. August 19th, 2021.

shareholders in 2013, with Goldman given minority protection in several closely defined areas.³ These financial investors oversaw a more focussed and result-driven transition.

A clearly defined focus on investments in offshore wind energy, since the start, helped the company shift its capital employed substantially from its legacy businesses to renewables over the years. With no new investments in coal and later oil and gas, Orsted leapfrogged its peers such as Shell whose commitment to an energy transition was belated, and not embraced wholeheartedly, with an associated board/leadership change.

Orsted's journey to becoming one of the leading renewable companies in the world can be attributed to both internal and external factors. Internally, the company's leadership made sound strategic decisions throughout its transition journey. Externally, the favourable subsidy regime in Europe and elsewhere, coupled with a bullish environment for renewables worldwide, provided external tailwinds.

Strategic internal decisions that helped Orsted's energy transition:

- 1. Committing to energy transition through long-term strategy realignment:** Orsted set tangible long-term goals for itself when it came to the addition of renewable energy and phasing out thermal power.
- 2. Using non-conventional sources of funding through farm downs, divestment of non-core assets and hybrid capital:** The company's funding strategy for its offshore wind projects relied on recycled capital from de-risked operational wind assets, proceeds through sale of non-core assets which did not fit in the long-term strategy of the company and using hybrid capital which did not qualify as debt. The limited use of debt gave the company financial flexibility and confidence to handle the operational risks of expanding rapidly into a new field.
- 3. Gradual de-risking and restructuring of legacy businesses:** A major component of the growth strategy was to restructure legacy businesses to support the growth of the offshore wind business. Cash flows from these legacy businesses were used to fund wind farm constructions, and simultaneously de-risked by adding value-added services and operational efficiencies.
- 4. Using economies of scale to establish cost leadership:** Orsted was an early mover in the offshore wind industry. Since its inception, it has made several advancements in establishing technological prowess across the value chain through partnerships and strategic investments. Investments in offshore wind were made at scale to capitalize on economies of scale. Having a presence across development, construction and operation stages gave the company full control over the project's entire life cycle.

³ Orsted. Orsted Annual Report 2012 and 2013.

5. Focus on sustainability related disclosures: The company was a frontrunner in sustainability related disclosures. Though Danish law mandated corporate sustainability disclosures since 2009, the company was already a member of the UN Global Compact from 2006.⁴ Orsted also disclosed its environmental, social and governance (ESG) performance since 2017.⁵ A good ESG score coupled with a consistent history of non-financial disclosures helped the company stay on its energy transition track and attract global capital, as witnessed in its share price performance over the years.

On the external side, the favourable subsidy regime and support for the development of renewables in Denmark and other European countries early on helped form the bedrock of the company's transition journey.

Case in Point for Countries Going Down the Path of Energy Transition

Denmark embarked on its quest to diversify away from oil following the Organization of the Petroleum Exporting Countries' (OPEC) oil crisis in 1970s. Locally sourced gas and later, renewable energy were relied upon to reduce the country's dependence on largely imported oil.⁶

Denmark's transition journey provides valuable lessons for India, which is already underway with a massive transformation to its energy sector. India has frequently seen its balance of payment worsening, and imported fossil fuel prices driving up inflation due to its high dependence on imported oil, liquefied natural gas (LNG) and coal. With limited domestic gas production, there is increasing reliance on LNG to meet its gas demand in various sectors, exposing the country to high LNG prices in the global spot market.

Denmark's transition journey provides valuable lessons for India, which is already underway with a massive transformation to its energy sector.

To bring energy security and fulfil the needs of a burgeoning economy, India has an ambitious plan to install 450 gigawatts (GW) of renewable energy by 2030⁷, which will also lend support to its shift towards electric vehicles. The Indian public utility sector, along with its private counterparts, will have a huge role to

⁴ Orsted. Orsted Annual Report 2006.

⁵ Orsted. Orsted ESG performance report 2017.

⁶ Rüdiger, Mogens. "The 1973 Oil Crisis and the Designing of a Danish Energy Policy." *Historical Social Research*, vol. 39, no. 4 (150), 2014, pp. 94–112. Accessed 6 Sept. 2021.

⁷ Ministry of New and Renewable Energy. *India achieves 100 GW Milestone of Installed Renewable Energy Capacity*. August 2021.

play in realising this massive goal.

On the policy front, the government has been helping with initiatives such as the Jawaharlal Nehru National Solar Mission (JNNSM)⁸, providing long-term power purchase agreements (PPA), waiver of interstate transmission charges⁹, competitive pricing regime, setting up renewable purchase obligations (RPOs) and providing financial assistance through the Generation Based Incentives (GBI), accelerated depreciation and income tax breaks.¹⁰ Moreover, investments in infrastructure and weeding out structural issues in the power sector have been major steps towards making the renewable energy sector being more competitive. However, more needs to be done in terms of proper implementation of reforms on the ground level such as enforcement of RPO's, strengthening India's distribution companies (discoms), and pacing up the development of a transmission network¹¹, amongst others.

The following table summarises what Indian companies can learn from the Orsted strategy and also provides examples where these companies have already undertaken steps in that direction.

⁸ IEA. [Jawaharlal Nehru National Solar Mission \(Phase I, II and III\)](#). May 2021.

⁹ Business Standard. [Transmission charges' waiver for renewable projects extended](#). June 2021.

¹⁰ India Briefing. [India's Solar and Wind Power Industries: Scope for Investors](#). March 2018.

¹¹ IEEFA. [India's Renewable Energy Policy Headwinds](#). February 2020.

Table 1: Strategies Adopted by Orsted and Learnings for Indian Companies

Strategy Adopted by Orsted	Key Action Items for Indian Companies	Examples from Indian Companies
<p>Committing to Energy Transition through Long-Term Strategy Realignment</p>	<ul style="list-style-type: none"> ✓ Long-term strategy realignment towards energy transition ✓ Detailing out time bound transition plan ✓ Setting tangible goals to track progress ✓ Consistent and bold efforts to stay on transition path and embrace new technologies 	<ul style="list-style-type: none"> ✓ NTPC Limited: Committed additions of 60GW of renewable energy to 2032^A and no new coal plants beyond those already in pipeline ✓ Tata Power: Phase out coal-based capacity and expand their clean and green capacity to 80% by FY30^B ✓ Reliance India Limited: Plan to invest USD 10 billion in solar generation and manufacturing, and green hydrogen production over the next 10 years^C ✓ Indian Oil Corporation: Plan to invest USD 3.5 billion in clean energy projects^D ✓ ONGC: Plan to setup 5-10GW of renewable capacity with a focus on offshore wind to 2040^E
<p>Using Non-Conventional Sources of Capital</p>	<ul style="list-style-type: none"> ✓ Market infrastructure assets which have long-term stable cash flows to financial investors when substantial value has been created ✓ Diversify risks pertaining to construction and operations of projects and pare stake early on during project construction ✓ Identify non-core businesses for divestment and use divestment proceeds to fund growth in core business area ✓ Define qualitative metrics to keep debt in check and use favourable sources of debt capital 	<p>Asset Recycling</p> <ul style="list-style-type: none"> ✓ Adani Green Energy Limited (AGEL): JV with Total SE for selling stake in operation solar assets^F ✓ Adani Transmission Limited: Sold 25.1% stake in Adani Electricity Mumbai Limited (AEML) to Qatar Holding^G ✓ Sterlite Power: Created India's first Infrastructure Investment Trust (InvIT) housing its transmission assets^H ✓ Powergrid Corporation of India Limited: Listed an InvIT housing its operational assets in 2021^I

^A Business Standard. NTPC targets 60GW renewable energy capacity by 2032. June 2021.

^B Tata Power. Tata Power set to reduce emissions in alignment with Science Based Targets initiative (SBTi). July 2021.

^C Business Standard. RIL to invest Rs 75,000 cr in clean energy, build 4 giga factories: Ambani. June 2021.

^D Mercom. Indian Oil Corporation Plans to Invest ₹250 Billion in Renewable Energy Projects. August 2019.

^E ONGC India. Wind Energy. March 2021.

^F Adani Green Energy. Media Releases. October 2020.

^G Adani Transmission. Media Releases. February 2020.

^H Indigrid. About Indigrid. Retrieved September 2021.

^I The Economic Times. PowerGrid InvIT lists at 4% premium over issue price. May 2021.

		<ul style="list-style-type: none"> ✓ <i>Indian Oil Corporation: Shared plans to monetise its network of crude oil and petroleum product pipelines^J</i> <p>Selling non-core Assets</p> <ul style="list-style-type: none"> ✓ <i>Tata Power: Sold stake in Tata Communications and its Strategic Engineering Division after classifying both as non-core^K</i> ✓ <i>Indian Oil Corporation: Plan to sell stakes in its hydrogen producing units and sulphur recovery facilities^L</i> <p>Use of debt capital</p> <ul style="list-style-type: none"> ✓ <i>NTPC Limited: Raised Green Masala Bonds worth USD 20 billion to fund its renewable energy projects^M</i> ✓ <i>Adani Green Energy Limited: NCD's issued to Total SE as part of JV, sealed USD 1.35 billion senior debt facility^N, issued green Bonds to refinance its operational assets and finance future expansion^O</i>
Gradual De-Risking and Restructuring of Legacy Businesses	<ul style="list-style-type: none"> ✓ <i>Redirecting cashflows from non-core business to grow core business and add value-added services in legacy businesses</i> 	<ul style="list-style-type: none"> ✓ <i>Tata Power: Optimizing operations and cut down on losses in CGPL, redeploying capital into discoms and new renewable developments^P</i>
Economies of Scale to Establish Cost Leadership	<ul style="list-style-type: none"> ✓ <i>Leverage economies of scale to gain cost leadership and be on the forefront of technological innovation and adoption</i> 	<ul style="list-style-type: none"> ✓ <i>NTPC Limited: Captive mines and ACQ's with Coal India Limited^Q to reduce raw material cost and supply shocks</i> ✓ <i>Adani Green Energy Limited: Carries out development planning, construction, and operation of projects inhouse. Has a centralized O&M monitoring system ENOC^R</i> ✓ <i>Renew Power: Forayed into solar manufacturing which will provide it greater control over capital costs^S</i>

^J Mint. [Indian Oil to monetise pipeline assets](#). February 2021.

^K Tata Power. Annual Report 2018 and 2019.

^L Business Standard. [IOC to sell hydrogen plants to monetise non-core assets](#). March 2021.

^M NTPC. [Press Releases](#). August 2016.

^N The Economic Times. [Adani Green raises \\$1.35 bn debt from 12 banks](#). March 2021.

^O Business Standard. [Adani Green raises \\$750 million from Green Bonds, coupon set at 4.375%](#). September 2021.

^P Tata Power. Tata Power Investor Presentation FY2021.

^Q NTPC. NTPC Investor Presentation FY2021.

^R Adani Green Energy Limited. Adani Green Energy Limited annual report FY2021.

^S Renew Power. [ReNew Power to manufacture solar cells and modules in India](#). July 2020.

<p><i>Focus on Sustainability Related Disclosures</i></p>	<p>✓ <i>Create processes to have transparent and exhaustive sustainability disclosures to leverage a growing pool of sustainability-led investors</i></p>	<p>✓ <i>NTPC, Tata Power and AGEL making ESG disclosures, leveraging most widely accepted frameworks and principles[†]</i></p>
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[†] NTPC, Tata Power and Adani Green Annual Report & Investor Presentation FY2021.

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A Transition Underpinned by Sustained Growth in Renewable Capacity

2006 saw the creation of a large energy company in Denmark which was formed through the merger of six power companies namely DONG, Elsam, Energi E2, Nesa and the electricity activities of Copenhagen Energy and Frederiksberg Forsyning. The combined entity controlled 60% of the power generated in Denmark at the time. Because of the merger, the shareholding of the Danish state in the combined entity was reduced to 73%.¹²

Until 2005, Orsted's (Dong Energy prior to 2017) role was limited to taking care of the state's participation in all Danish oil exploration licenses. The company's primary business was trade and supply of natural gas in Denmark, Southern Sweden, and export to Germany and Netherlands.

Prior to 2005, Orsted's role was limited to taking care of the state's participation in all Danish oil exploration licences.

After the merger, the company acquired several generation assets, including offshore wind farms, and expanded its gas trading activities.

The various business segments of the new company were:

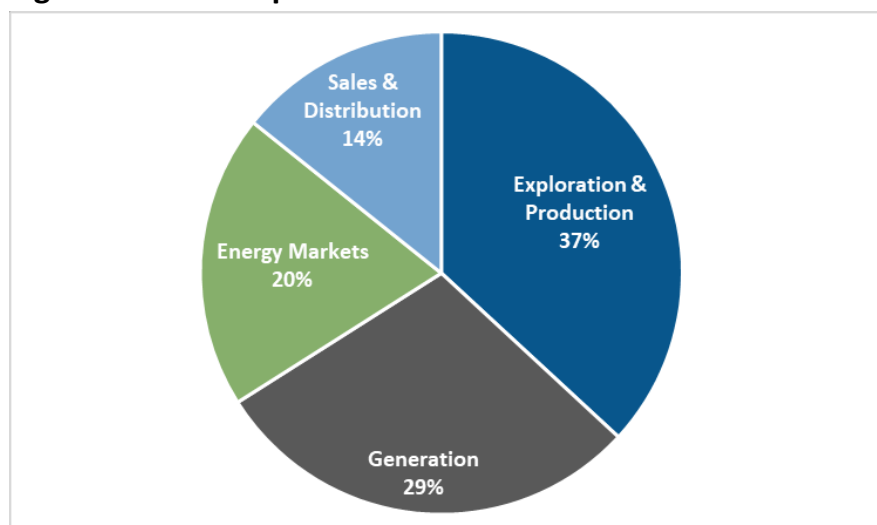
1. **Generation:** Produced energy from power stations running on fossil fuels and from offshore wind and hydropower plants.
2. **Exploration & Production:** Engaged in the exploration and production of oil and gas, and the procurement of gas at competitive prices.
3. **Distribution:** Took care of the electricity, gas distribution, and storage of gas in Denmark.
4. **Markets:** Sold the electricity and natural gas procured internally and from external partners to customers in markets in Denmark, Sweden, Germany and the Netherlands.

At the time, the exploration and production of oil was the largest contributor to Orsted's operating profit, while electricity generation came in second. At the end of 2006, the generating capacity from thermal power stations was 5.7GW, while the capacity from wind and hydropower-based stations was 0.9GW.¹³

¹² Orsted. Orsted annual report 2006.

¹³ Orsted. Orsted annual report 2006.

Figure 2: EBITDA Split in 2006¹⁴

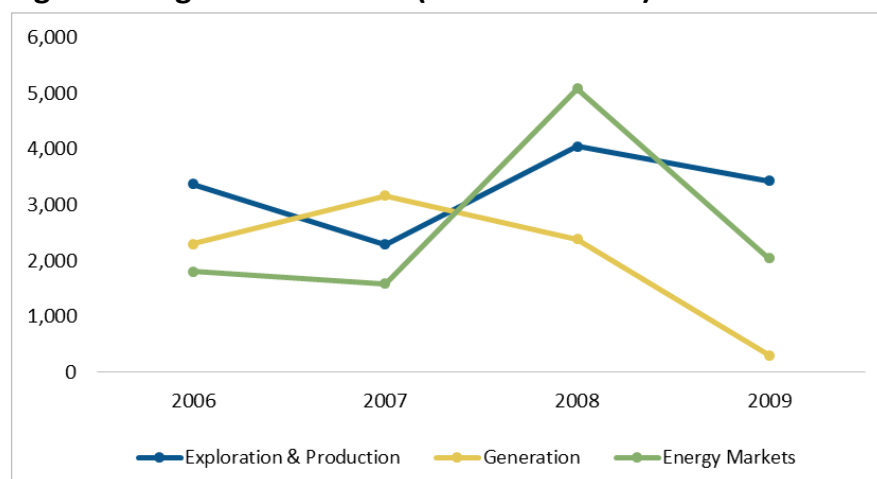


Source: IEEFA analysis; Orsted annual report 2008.

Volatile Earnings and Growing Focus on Climate Action in Europe Defined Orsted's Initial Years of Operation

Orsted's energy markets' segment procured 90% of gas supplies from external parties such as Shell, Maersk, and Chevron, both within Denmark and internationally in 2006.¹⁵ Thus, it was exposed to the global gas prices movement, along with currency fluctuations. As evident in figure 3 below, all of the companies' segments were exposed to oil, gas and electricity prices during their initial years.

Figure 3: Segmental EBITDA (in DKK millions)¹⁶



Source: IEEFA analysis; Orsted annual report 2007, 2008, 2009 & 2010.

¹⁴ Does not include adjustments for intersegment sales; Restated in 2008 to reflect the implementation of IFRS 8 standard.

¹⁵ Orsted. Orsted annual report 2006.

¹⁶ Generation does not include renewable EBITDA.

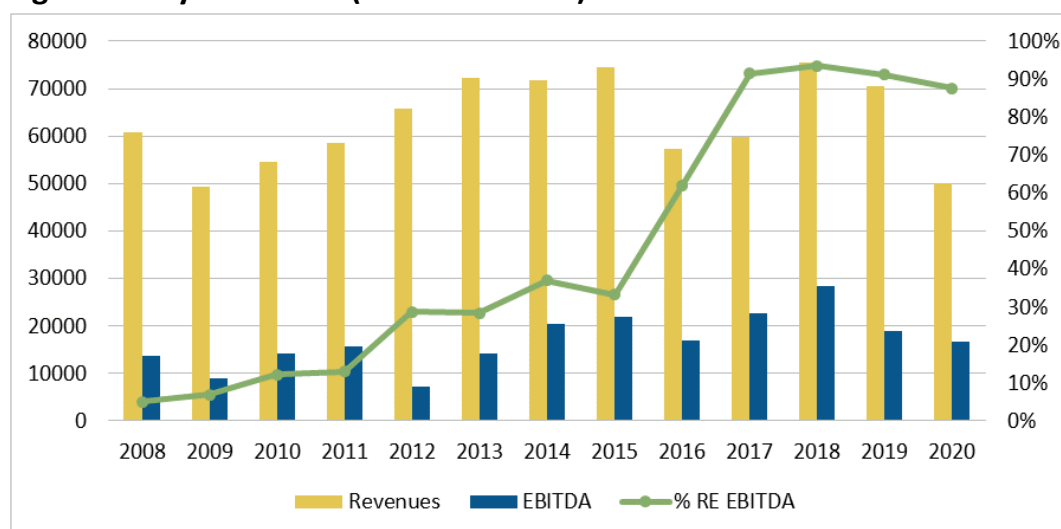
During the same time, climate and energy policies in the EU were being formalized with the “20-20-20” targets being set in 2007. These were a series of targets to reduce greenhouse gas emissions (GHG), increase renewables sourcing and improve energy efficiency.¹⁷ Consequently, Denmark and other countries, like Germany and the UK, set their own targets to increase the penetration of renewables.

A New Strategy Was Formulated To Guide the Combined Entity

In response to the formation of a new combined entity, a new strategy was formulated to provide a future roadmap. This included a focus on establishing stable and sustainable electricity generation, among other goals. The focus on stable generation stemmed partly from the need to bring stability and visibility in the company's revenue streams. At the time, Orsted's portfolio was heavily weighted by fossil fuels which comprised 85% of the total generation, making it one of the most coal-intensive utilities in Europe and responsible for around a third of all Danish emissions.¹⁸ After the liberalisation of the Danish electricity market in 1999, the power portfolio of generation companies became susceptible to market driven prices. This coupled with the regulatory guidance of Denmark's prevalent carbon taxes made power companies rethink their future strategies. Moreover, the evolving climate policy in Denmark and other European countries provided policy support for the growth of the renewable energy sector.

Orsted's Financial Performance During Its Transition Years

Figure 4: Key Financials (in DKK millions)¹⁹



Source: Orsted Annual Report 2009-2020.

¹⁷ ec.europa.eu. 2020 climate & energy package. Retrieved September 2021.

¹⁸ Danish Energy Agency. How a state energy company like Ørsted shifted from black to green energy – and the regulatory framework that made it possible. May 2021.

¹⁹ % RE EBITDA is non IFRS after 2010; Beginning 2016 the company classified Oil & Gas business as discontinued operations which was sold in September 2017.

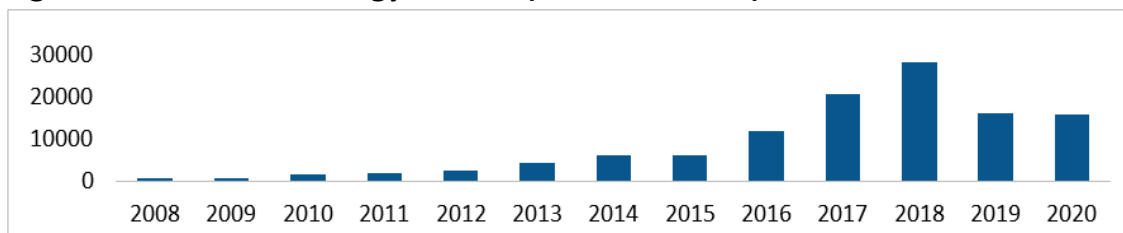
Amidst a volatile revenue trajectory, as the company phased out its commodity price linked portfolio and carried out farm-downs, the share of renewable energy increased from 5% EBITDA contribution in 2008 to 88% in 2020.²⁰

In 2009, after the global financial crisis hit the world, Orsted which had the majority of its portfolio subject to commodity prices, saw a massive fall in revenues, which fell by 19%, and net profits plummeted by more than 75%. Unshakably though, the company doubled down its green energy commitments, inaugurating the world's biggest offshore wind farm, the Horns Rev 2, with a capacity of 209 megawatts (MW).²¹

**EBITDA dipped in 2012
due to earnings in
the midstream gas
trading business being
substantially lower.**

The company saw double-digit growth in revenues from 2009 to 2013 as the contribution of offshore wind in the top line increased from DKK 1,676 million to DKK 11,960 million.²² EBITDA dipped in 2012 due to earnings in the midstream gas trading business being substantially lower, along with provision for onerous gas contracts, but recovered in 2013. In 2012, Orsted's financial standing deteriorated, with S&P downgrading its credit ratings, and the company divested several non-core assets along with an equity raise to improve its capital position.²³

Figure 5: Renewable Energy EBITDA (in DKK millions)



Source: Orsted Annual Report 2009-2020.

The period from 2014 to 2017 saw revenues fall from DKK 71.8 billion in 2014 to DKK 59.7 billion in 2017. This was due to the sharp drop in oil and gas prices during 2014 and 2015, which caused the company to rethink its strategy for the exploration and production (E&P) segment, leading to the sale of the business in 2017.²⁴

²⁰ % RE EBITDA is non-IFRS after 2010; Beginning 2016 the company classified Oil & Gas business as discontinued operations which was sold in September 2017.

²¹ Orsted. Orsted annual report 2009.

²² Non IFRS in 2013.

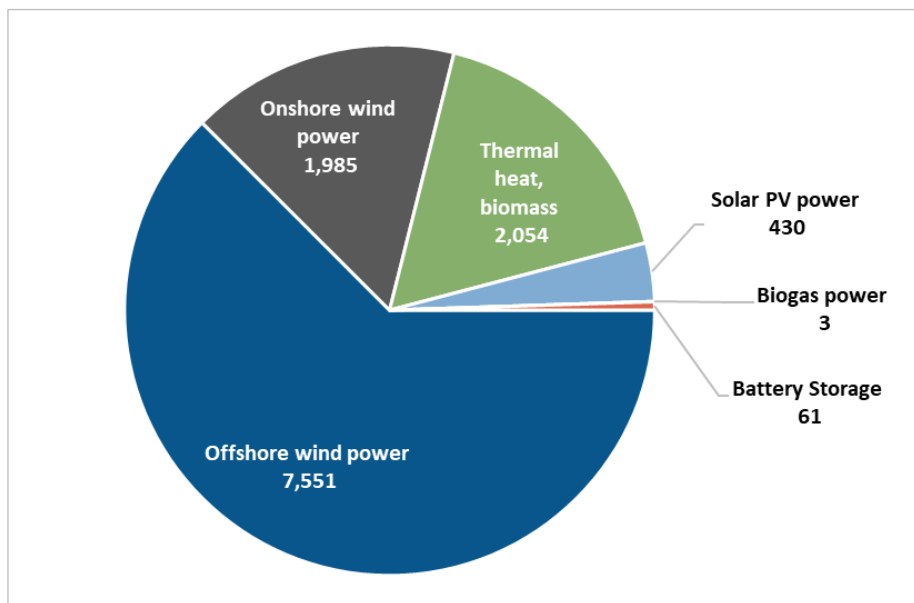
²³ Orsted. Orsted annual report 2009, 2012 & 2013.

²⁴ Orsted. Orsted annual report 2014, 2015 & 2017.

After divesting its legacy E&P business and changing its identity to Orsted in 2017, the company redefined its operating segments in 2019 into two broad categories. Renewables, which included the onshore and offshore wind business, and Markets and Bioenergy, which housed the entire Combined Heat and Power (CHP), and Distribution and Trading portfolio. Revenues remained steady in the offshore wind segment during the period, while remaining volatile in the gas trading business, which saw an increase in 2018 and then a subsequent fall in 2019 due to a significant drop in gas prices during the year. 2020 was mainly affected by the impacts of COVID-19, even though the EBITDA contribution of the renewables segment was in line with last year. It was also the year when the company saw a major divestment drive as it sold off its Danish Power Distribution, Residential Customer and City Light businesses and LNG activities, thus becoming even leaner and focussed on growth in its renewable business.²⁵

Orsted currently has an installed renewables' capacity of 12.1GW²⁶ (as of H1 2021) across onshore wind, offshore wind, biogas power, thermal heat through biomass and solar PV projects in Europe, North America and Asia. It has a robust pipeline of 13.1GW of renewables' capacity. The company has plans to venture into green hydrogen in the future and has ongoing projects in the area. The legacy business has shrunk in size, contributing only 12% to the EBITDA in 2020, and is expected to contribute even less after the company's divestment drive during the year.

Figure 6: 2020 Installed Renewable Capacity (MW)²⁷



Source: IEEFA analysis.

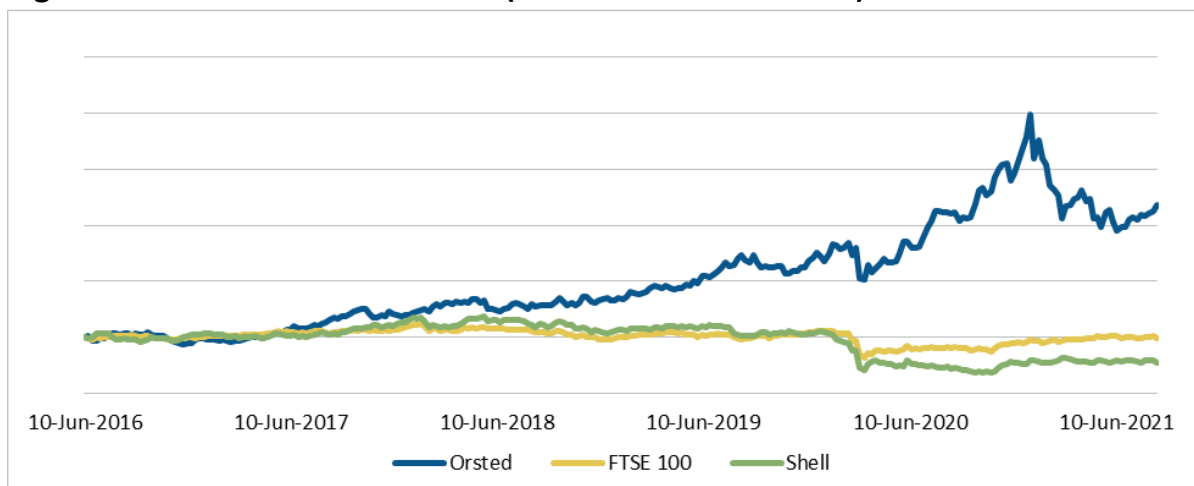
²⁵ Orsted. Orsted annual report 2017, 2018, 2019 & 2020

²⁶ Before divestments and farm-downs.

²⁷ Before divestments and farm-downs.

The company was listed on the Nasdaq Copenhagen stock exchange in June 2016, and since then it has given a total return²⁸ (including dividends) of 354.5% compared to 37.6% for FTSE 100 and just 0.7% for Royal Dutch Shell. The massive outperformance of Orsted vis-à-vis its one-time peer Shell is a testament to the increased risk profile financial markets are assigning to oil and gas companies who are yet to provide a material transition to a more sustainable future.

Figure 7: Share Price Performance (Indexed Returns in USD)



Source: Refinitiv. August 19th, 2021.

Since 2006, the company has transformed from one of the most coal intensive utilities in Europe to a global leader in offshore wind energy. Its transition journey was underpinned by several strategic shifts and steps taken over a period of more than a decade.

The next few sections will elaborate on the company's key strategic and financial decisions that helped it during this transition journey and explore the role of external factors like government support and overall growth in renewable energy investments across the world.

Committing to Energy Transition Through Long-Term Strategy Realignment

Orsted increased its installed renewable capacity from 900MW in 2006 to 11,297 MW in 2020, implying a compound annual growth rate (CAGR) of 19.8% over the period.²⁹ This transition was achieved through a consistent focus on investments in wind energy and phasing out or conversion of thermal capacity.

In 2007, after the merger of the six power companies in Denmark, the new combined entity, Dong Energy, redefined its growth strategy for the generation

²⁸ Refinitiv. 19th August 2020.

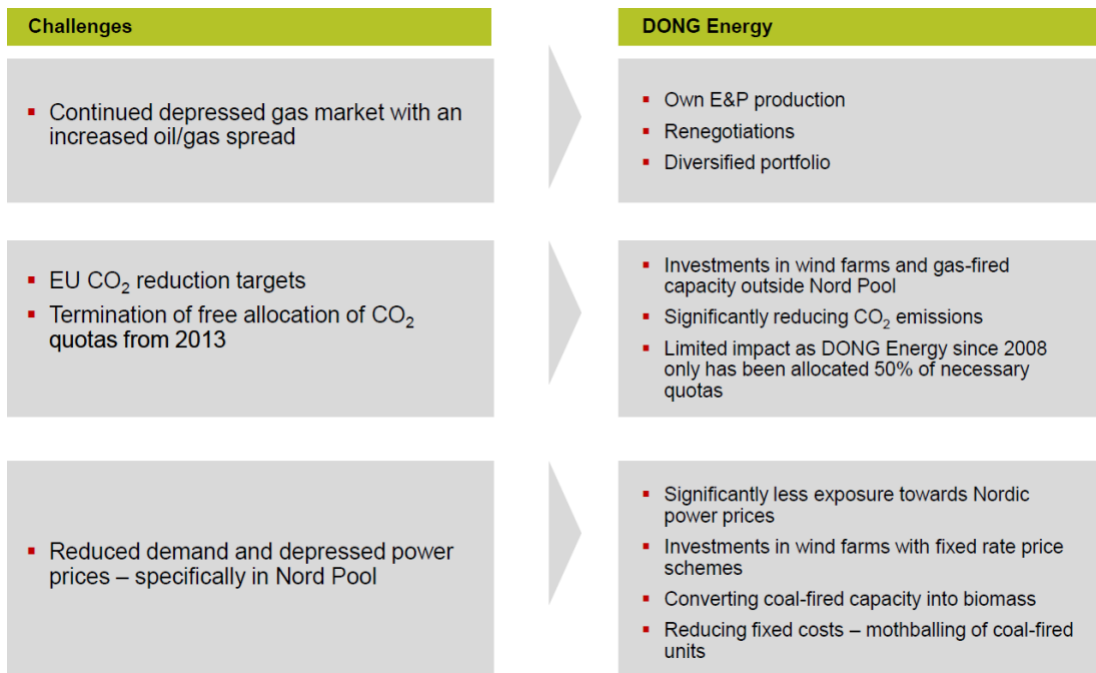
²⁹ Orsted. Orsted annual report 2006 & 2020.

business. It set a long-term target of tripling its renewable energy capacity by 2020 to 3GW.³⁰ Dong Energy's (name changed to Orsted in 2017) aim was to establish stable and sustainable electricity generation. This was in line with its new environmental strategy, which placed the environment on an equal footing with the other objectives. This is due to the adoption of stringent CO₂ quotas for the electricity sector in Denmark after the Kyoto protocol and given that the Danish state owned 74% in the company.

During this time, Orsted's majority business was exposed to the price fluctuations prevalent in energy markets. Most of its portfolio was still linked to oil and gas, and electricity prices. Revenues from the Energy Markets division went from DKK 24.3 billion in 2006 to DKK 38.1 billion in 2008, only to fall by 26% in 2009 to DKK 28.2 billion. Thus, it was important for the company to bring more stability and visibility to its revenue streams. Offshore wind with its stable subsidy scheme and price visibility would fulfil both goals for Orsted.

Since 2006, Orsted has transformed from one of the most coal intensive utilities in Europe to a global leader in offshore wind energy.

Figure 8: Orsted Key Challenges and Mitigants FY 2010

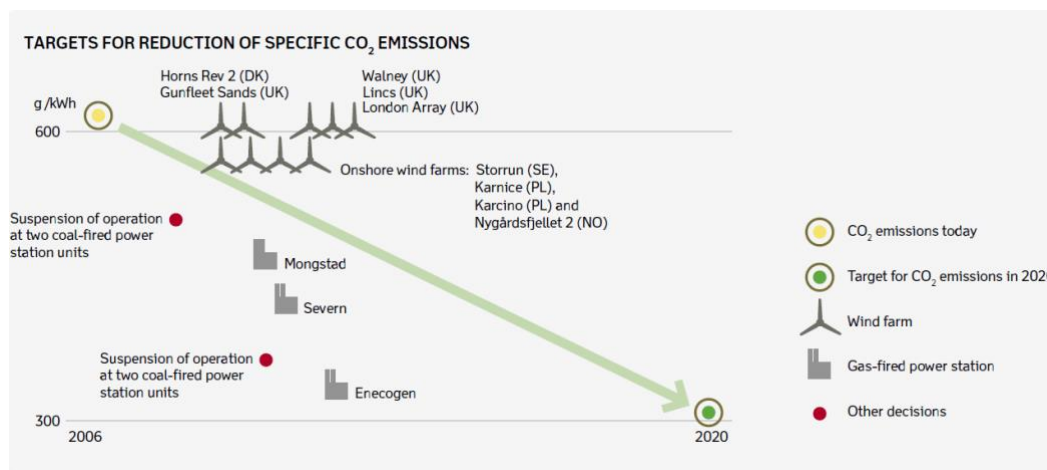


Source: Dong Energy Annual Report FY2010.

³⁰ Orsted. Orsted annual report 2007.

Orsted also set itself a long-term target of reducing its CO₂ emissions till 2020, under the heading 85/15 which implied the generation ratio between renewable and fossil-based power.

Figure 9: Orsted's Emissions Reduction Plan Until 2020



Source: Dong Energy Annual Report FY2009.

After the global financial crisis in 2008, which saw utility companies take a more conservative approach to making new investments, the company made wind power the key element of its transition strategy and took several major steps in 2009³¹:

- Orsted inaugurated Horns Rev 2 offshore wind farm, the world's largest at the time with a capacity of 209MW.
- In parallel, it decided to suspend operations at four of its coal-fired power stations, reducing coal-fired capacity by a quarter in under two years.
- Further the company dropped all new coal power development projects and began exploring opportunities for converting power station units from coal to biomass.
- Orsted also signed the world's largest offshore wind turbine agreement with Siemens.

After the GFC in 2008, Orsted made wind power the key element of its transition strategy.

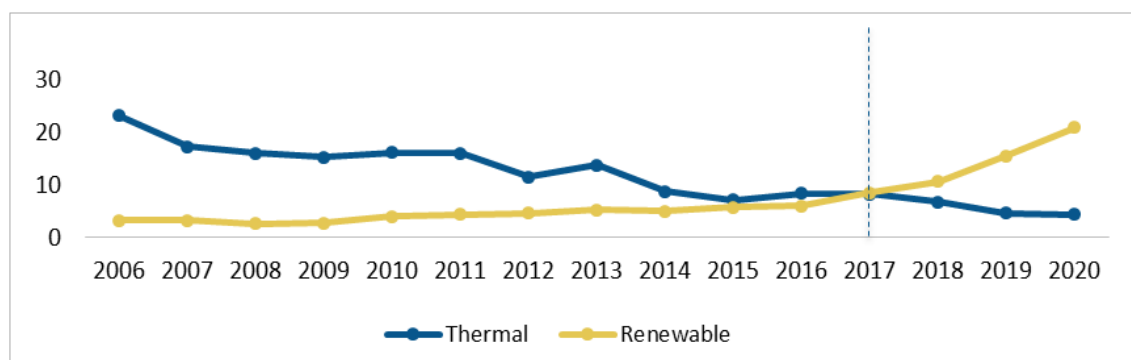
This resulted in the EBITDA contribution of renewables to almost double from 6.9% in 2009 to 12.2% in 2010.

³¹ Orsted. Orsted annual report 2009.

In 2010, the company split its generation segment into two separate reporting units – Renewables and Generation, underlining the different strategic directions of the two business segments. The number of coal-fired units in Denmark was reduced from ten to five in three years and the company mothballed a combined thermal capacity of 1,397MW.

In 2017, Orsted decided to phase out the use of coal by 2023 by closing operations of its single remaining coal plant.

Figure 10: Power Generation, TWh

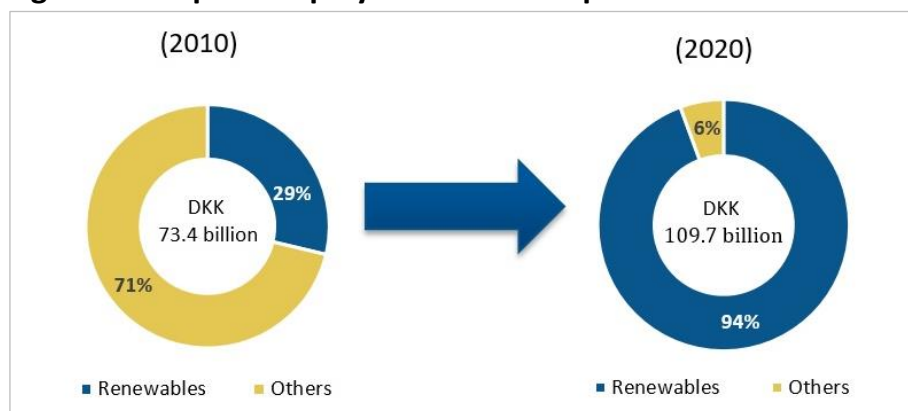


Source: IEEFA analysis; Orsted annual report 2006-2020.

In financial terms, the company shifted its capital base from fossil fuels to renewables, with the share of capital employed in renewables rising from 29% in 2010 to 94% in 2020.

This altered the EBITDA contribution from CHP, energy markets, and distribution and sales segments from 60.4% in 2006 to 11.8% in 2020. These three segments were combined into a new reporting segment Markets and Bioenergy in 2019.

Figure 11: Capital Employed as Part of Operations³²



Source: Orsted Annual Report 2011 and 2020.

³² Capital employed defined as sum of interest-bearing net debt and shareholders' equity.

Learnings for Indian Companies

Key Action Items

- ✓ **Long-term strategy realignment towards energy transition** – A long-term transition plan by companies will provide visibility about the future business trajectory.
- ✓ **Detailing a time bound transition plan** – A time bound plan will give more clarity to shareholders and provide impetus to management to stay on course, such as Orsted's 85/15 plan.
- ✓ **Setting tangible goals to track progress** – Setting clear goals in terms of capacity expansion/contraction, expected returns and investment requirements will help track progress against targets.
- ✓ **Consistent and bold efforts to stay on transition path** – Transition plans may get derailed due to the short-sightedness of certain shareholders in pursuit of short-term returns or due to the inability to generate desired returns from new businesses. This may require bold steps from the management and board.

Examples from Indian Companies

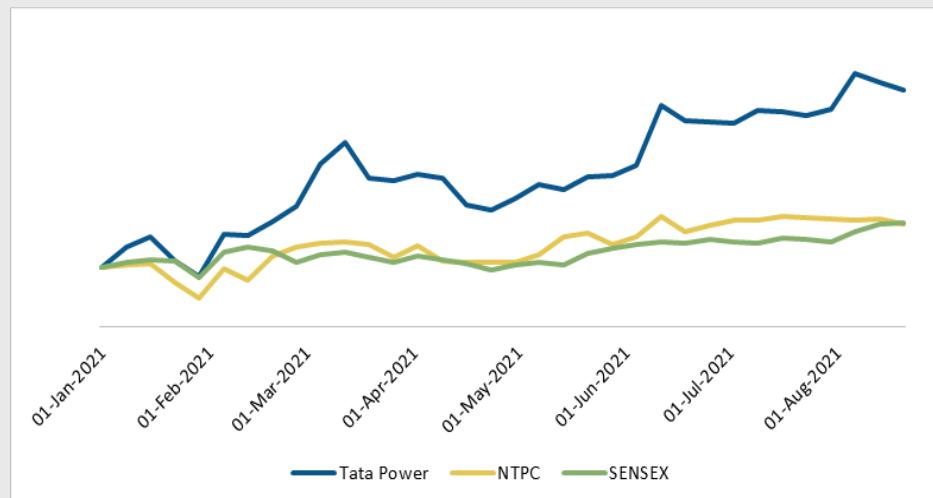
NTPC Limited

NTPC Limited, the country's largest power producer, has an installed thermal capacity of 66.9GW and has materially shifted its focus towards renewable energy, committing additions of 60GW of renewable energy until 2032, and no new coal-fired plants besides the ones already in the pipeline. This commitment was recently strengthened with its announcement to build India's largest solar park of 4.75GW in Gujarat.¹

Tata Power Limited

Tata Power, among the largest private utilities, realigned its long-term strategy with plans to phase out coal-based capacity and expand their clean and green capacity to 80% by FY30, from a current base of 3.1GW.

Figure 12: Share Price Performance of NTPC and Tata Power vs. Sensex



Source: Refinitiv. August 19th, 2021.

Tata Power's share price has outperformed the benchmark, while NTPC returns have been in line with benchmark returns since January 2021. Both companies strengthened their green energy infrastructure and grid Transmission and Distribution (T&D) plans during this period.

Oil and Gas Majors: Reliance India Limited (RIL), Indian Oil Corporation (IOC) and Oil and Natural Gas Corporation (ONGC)

Oil & Gas majors, IOC and ONGC from the public side and RIL from the private side, have also unveiled their plans to capitalize on India's green energy push.

Reliance recently disclosed a mega multiyear plan to invest USD 10 billion in solar generation and manufacturing, and green hydrogen production over the next ten years. It plans to produce 100GW of solar power in ten years.

IOC came out with plans in 2019 to diversify its business by investing USD 3.5 billion in clean energy projects like solar, wind, biomass and solar panels. The company has launched electric vehicle (EV) charging stations and plans to set up a gigawatt scale EV battery manufacturing factory. It is also going to build India's first green hydrogen plant.

ONGC's energy strategy 2040 plans to set up 5-10 GW of renewable capacity with a focus on offshore wind.

These strategic shifts with tangible goals are imperative for companies to stay on the energy transition path, as witnessed with Orsted. What needs to be seen is how these companies can remain committed to their targets and walk-the-talk through tangible interim results to evidence their commitment.

Non-Conventional Sources of Capital: Farm-Downs, Divestment of Non-Core Assets and Hybrid Capital

Orsted has risen to the position of the largest offshore wind farm owner and operator in the world, a feat it has achieved through a relentless focus on continuously scaling up its operations in the segment. Naturally, the availability of readily available capital was a prerequisite. A common financing structure when funding renewable assets is through raising project-level debt. But the company had a different approach to financing through a centralised financing strategy where the parent provided the funding requirement at subsidiary/project level.

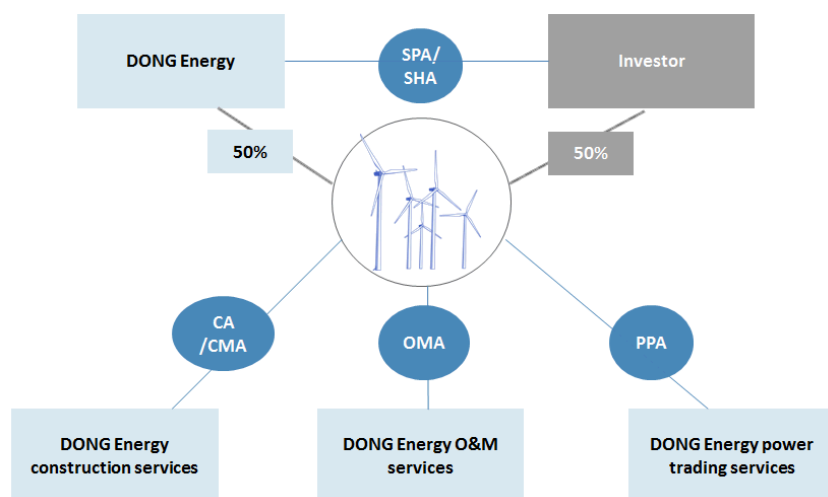
Capital Recycling Through a Farm-Down Model

Due to the stable subsidy scheme underpinning the offshore wind business, a large proportion of cash flows were fixed in nature and secured for several years into the future. This revenue visibility was desirable by financial investors, like pensions. Moreover, Orsted's expertise in the site selection, construction and operation of

offshore wind farms made it a partner of choice for financial yield investors, who lacked the expertise and desire to construct and operate such assets. Thus, these investors were ready to pay Orsted a margin for the construction and operation of offshore wind assets.

In 2010, Pension Danmark acquired 30% in one offshore wind farm from Orsted, and a JV consisting of the Dutch Ampère Equity Fund, and the Dutch organisation PGGM (manages several collective pension schemes) acquired a 24.8% interest in another wind farm, which was under construction.³³ This paved the way for a unique asset rotation strategy for Orsted, known as farm-down, which the company used extensively in the future to spread risks, secure co-financing for projects and provide cash flows to invest in new projects.

Figure 13: An Illustration of Farm-Down Model of Orsted Energy



Source: Orsted Energy Initiation Report JP Morgan Cazenove.

The model involved selling a stake in the project (usually 50%) after the project Final Investment Decision (FID) has been made, at a valuation close to the project's Net Present Value (NPV). Most of the value creation in an offshore wind farm happens during the development (site selection, obtaining approvals and licenses) and construction phases, given the progressive de-risking of the project as it moves from development to construction to operations. After the development phase, once the FID was done, the company brought in a partner, usually patient long-term capital from pension funds, and realized half of the project's value upfront. This capital was then recycled into new farms. Thus, the company could keep bidding for new farms and expanding its pipeline of projects.

In 2018, the farm-down of 50% of Hornsea 1 was one of the largest renewable energy Merger and Acquisition (M&A) transactions ever and contributed to a one-off gain of DKK 15.1 billion to the company's EBITDA, which rose to an all-time high of DKK 30 billion.

³³ Orsted. Orsted annual report 2010.

Learnings for Indian Companies

Key Action Items

- ✓ **Market assets that have long-term and stable cash flows through innovative structures** – Monetization of operational assets needs to be a core part of a company's financing strategy to keep recycling the capital. Capitalizing on the growing market for Infrastructure Investment Trusts (InvITs), public listing of businesses and Joint Ventures (JV) are a few financing structures that can be used.
- ✓ **Bring in financial and strategic investors to invest in these assets where substantial value has been created** – A slew of financial investors like pension funds, sovereign wealth funds, and strategic investors such as oil and gas majors, are eyeing the Indian market for potential opportunities to park their capital or diversify their business. Indian renewable energy assets make a compelling case for pension funds looking for long-term annuity-like returns. While for strategic investors like oil and gas companies, they are looking for JVs or strategic partnerships with local renewable energy developers, in their quest to achieve their net zero targets. A focussed strategy to tap into these investors will be required.
- ✓ **Selling part stake early on during the project's life** – A key action item to look out for will be the ability to secure low-cost funding during the initial stages of project life when most of the capital expenditure happens.
- ✓ **Diversify risks pertaining to construction and operation of projects** – Co-financing projects through farm-downs also helped Orsted share risks pertaining to the construction and operation of projects with farm-down partners. From an Indian context, cancellation of purchase power agreements (PPA) by discoms, increase in solar module or wind blade prices, or black swan events such as COVID-19 pose a risk that can be diversified away by bringing in other investors.

Examples from Indian Companies

Adani Green Energy Limited (AGEL) has had success recycling its capital invested in operational assets by creating a JV with Total SE.

Adani Transmission Limited sold off a 25.1% stake in its Adani Electricity Mumbai Limited (AEML) to Qatar Holding.

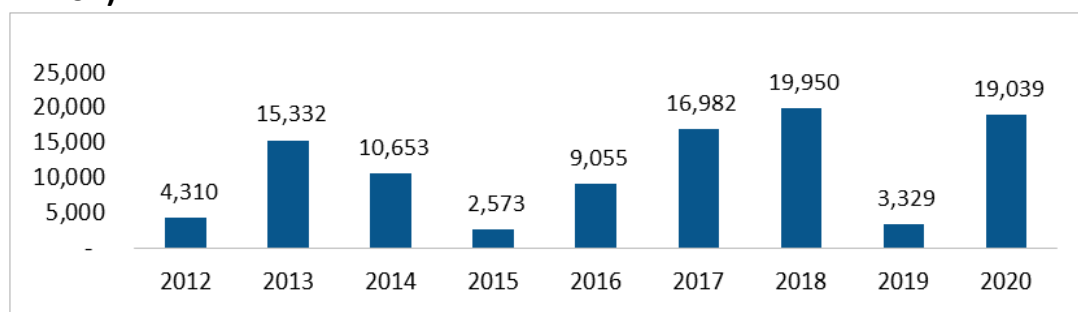
Sterlite Power on the transmission side created India's first Infrastructure Investment Trust (InvIT) in 2016, bringing in global investors like KKR and GIC on board.

Powergrid Corporation of India Limited (PGCIL) which owns most transmission assets in the country, was successful in publicly listing an InvIT housing its operational assets, recently in 2021.

Indian Oil Corporation (IOC) has shared plans to monetise its network of crude oil and petroleum product pipelines, likely by floating an InvIT.

Another Funding Source for Orsted Was Through the Divestment of Non-Core Assets

Figure 14: Total Divestment Cashflows Including Farm-Downs (DKK million)



Source: IEEFA analysis; Orsted annual report 2012-2020.

Orsted continuously pursued hiving off its non-core assets to focus on its long-term strategy of growth in clean energy. Over the years, this has resulted in a steady divestment of assets in the generation, oil and gas, energy markets, and distribution and supply businesses.

In the generation segment, the company started the divestment of coal powered plants since 2006, having divested five of its ten plants in the four years until 2010.

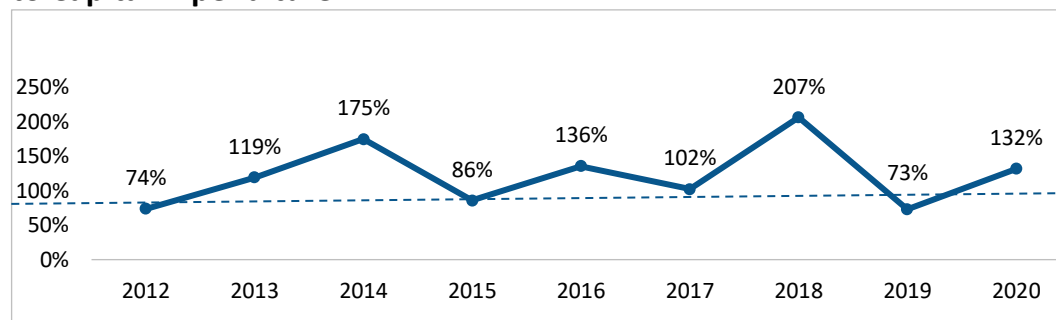
In the energy markets segment, which included the midstream gas trading business of the company, a large part of the supply was through long-term gas contracts. Over the years, the earnings from these contracts fell due to the structural changes in the oil and gas markets. This meant that the company's traditional oil and gas trading business represented a smaller share of earnings. In 2012, substantially lower earnings in the trading business and provision for onerous gas contracts prompted the company to divest a sizeable portion of its legacy businesses and reduce ownership interest in core activities. During 2013 and 2014, the company made divestments to the tune of DKK 26.0 billion across non-core assets in gas power stations, onshore wind, and hydropower business along with farm-down in the core offshore wind business, to improve its financial standing. The divestments of non-core assets continued in later years with the divestment of gas distribution and oil pipeline in the North Sea to Energinet.dk in 2016 as part of the company's IPO plans. More recently, the sale of the Danish power distribution and residential customer businesses to SEAS-NVE in 2020, allowed Orsted to focus entirely on renewable energy generation.³⁴

The oil and gas business, originally strategized to be a growth engine for the company along with offshore wind, was adjusted to focus on cash generation and to support the expansion and investments in green energy after a significant decline in oil and gas prices during the second half of 2014. In 2016, the portfolio was

³⁴ Orsted. Orsted annual report 2012, 2013, 2014, 2016 & 2020.

optimised by divesting five Norwegian assets and withdrawing from gas licenses. Subsequently, the entire business was sold off in 2017.

Figure 15: Ratio of Total Divestment Income Plus Operating Cash Flows to Capital Expenditure



Source: IEEFA analysis; Orsted annual report 2012-2020.

Learnings for Indian Companies

Key Action Items

- ✓ **Identify non-core businesses for divestment to focus on core operations –** A key action item for conventional utilities like NTPC and Tata Power which have sizeable legacy businesses, will be the ability to continually assess the viability of segments that are not part of its core operations.
- ✓ **Identify business areas which are a drag on profitability and reassess their strategy –** Identification and divestment of unprofitable non-core businesses such as in thermal power, especially where the average cost of supply is much higher than recently discovered renewable tariffs should be undertaken to shift capital base towards higher return generating assets
- ✓ **Use divestment proceeds to fund growth in core business area –** The ability to channel divestment proceeds into funding core business growth will be required, rather than passing it on to shareholders as dividends or other means.

Examples from Indian Companies

Tata Power's strategic focus includes reducing debt levels through various options including monetizing non-core assets and investments. In 2018, it sold its stake in another Tata Group company, Tata Communications, and in 2019 it sold off its Strategic Engineering Division after classifying both as non-core.

IOC plans to sell stakes in its hydrogen-producing units and sulphur recovery facilities in line with the government's asset monetization scheme of non-core assets by Public Sector Units (PSU's).

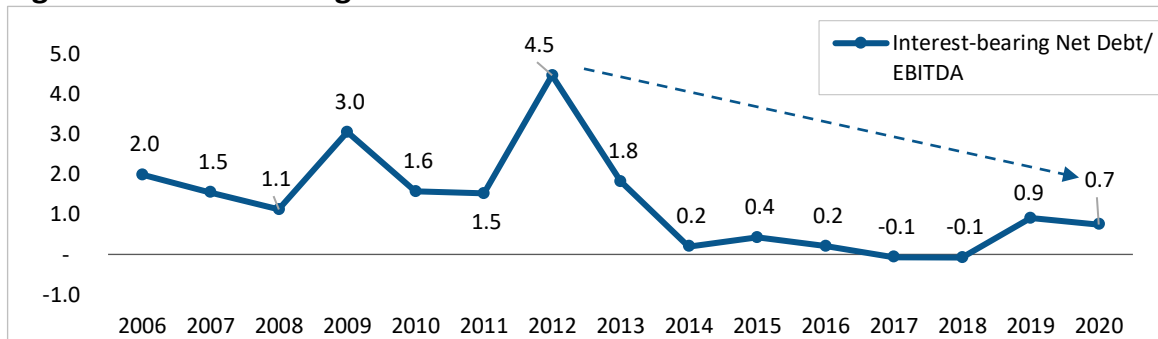
For Indian utilities, a large part of their revenue streams from thermal power is

regulated in nature, unlike Denmark where the electricity market was liberalized in 1999. So, Indian companies may not have the same motivations to divest non-core assets. But capital recycling is a key theme to accelerate the deployment of funds to build capacity in the future technologies, rather than holding on to legacy assets, even as global interest in these assets progressively evaporates.

Reduction in Net Debt and Use of Hybrid Capital

Orsted's primary credit metric, Funds from Operations (FFO) to net debt, saw massive improvements from 2006 to 2020. The company pursued aggressive debt reduction and always had one eye on improving its credit ratings through deleveraging. Its financing strategy has credit rating as a metric, which was targeted at BBB+ most recently³⁵, and the company took its debt financing decisions, keeping that in mind.

Figure 16: Debt Coverage Ratio



Source: IEEFA analysis; Orsted annual report 2006 to 2020.

Figure 17: FFO/Adjusted Net Debt Ratio



Source: Orsted Annual Report 2012 and 2020.

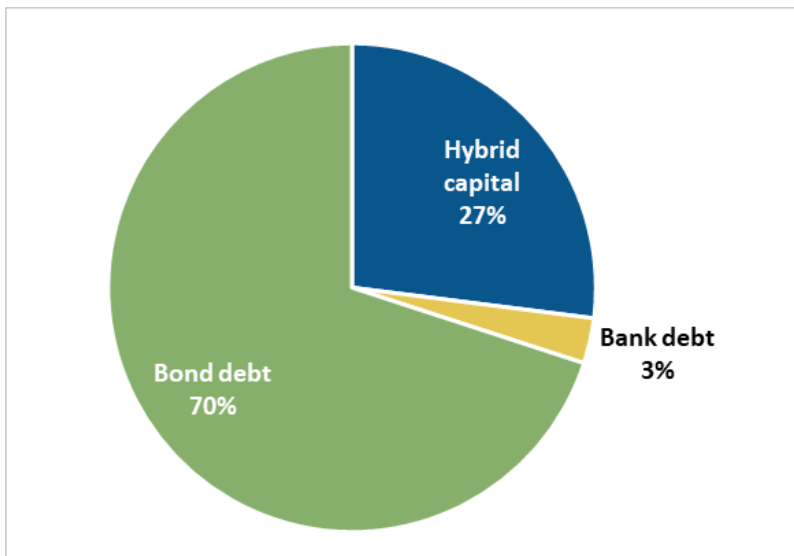
After facing considerable financial challenges in 2012, the company entered into an agreement with investment bank Goldman Sachs and the Danish pension funds ATP

³⁵ Orsted. Orsted investor presentation 2020

and PFA in 2013, on an equity injection totalling DKK 11 billion diluting a combined ownership interest of 25% in Orsted. Both the entities got board representation in the company, with Goldman Sachs also given minority protection in several closely defined areas, including a decision on major issuances of new capital. Since 2012, the company targeted a reduction in its Net Debt/ EBITDA ratio, reflecting its ambition to reduce dependence on debt.

Orsted has also used hybrid capital extensively since 2005 to strengthen its capital base and fund its capital expenditure (capex) and acquisitions. This was done primarily through subordinated debt that has a maturity of 1,000 years where Orsted had the option to omit or postpone interest payment to bondholders. Because of the special characteristics of the bond loan, it is accounted for as equity. In 2017 the company also issued its first hybrid green bond, which helped raise money at low yields to fund its wind energy pipeline.

Figure 18: Gross Debt and Hybrids FY2020



Source: Orsted Investor Presentation 2020.

Learnings for Indian Companies

Key Action Items

- ✓ **Defining qualitative metrics to keep debt in check** – Defined credit rating and capital structure targets helped Orsted raise new debt at attractive terms, which is an important consideration for Indian companies to grow rapidly. The use of a financing policy that defines these targets can help maintain financial discipline.
- ✓ **Utilising favourable sources of debt capital** – Indian markets have ripened lately to support green bonds, sustainability-led debt, Masala bonds etc. These have helped companies tap global capital at attractive terms. Indian companies will have to continue tapping this global capital pool to remain competitive.
- ✓ **Debt refinancing** – The ability of companies to refinance debt raised during project FID with cheaper long tenure debt after the project becomes operational will help boost earnings and return profile of these projects.

Examples from Indian Companies

NTPC which has sovereign credit ratings has been able to keep its leverage range-bound even as it has expanded its capital base. Its debt profile is a mix of bonds, foreign currency loans, and term loans. It also raised Green Masala Bonds to fund its renewable energy projects. The comfortable leverage position could be partly explained by the strong operational cash flows stemming from its legacy PPAs with state discoms at expensive tariffs. Going forward, the company has to go through a competitive bidding route to add renewable assets, which will put downward pressure on its average tariffs and subsequently cash flows. Thus, the use of leverage will need to be moderated.

Tata Power's debt structure is a mix of Non-Convertible Debentures (NCD's) and term loans with a majority raised within the country. The company also has a portion of its thermal revenues regulated, which might change in the future going by its commitment to add only renewable capacity. Like Orsted, Tata Power has also raised capital through the issuance of unsecured perpetual securities, which were considered to be like equity instruments.

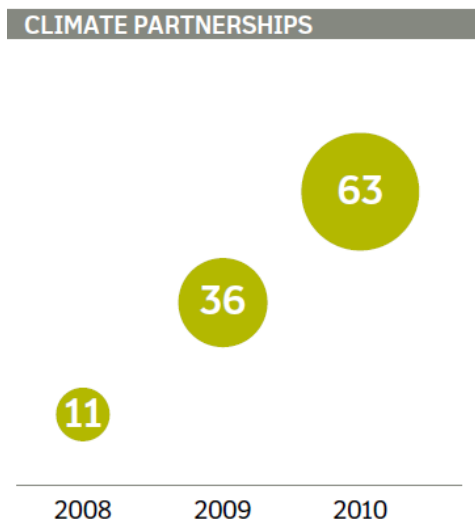
Adani Green Energy Limited has been among the few Indian energy companies that have utilized global debt capital extensively. It has a debt structure comprising of stapled instruments which it raised via its JV with Total, term loans both rupee and foreign currency denominated, and senior secured USD bonds. It also recently sealed USD 1.35 billion senior debt facility in one of Asia's largest project financing deals. The company has issued green bonds to refinance its operational assets and finance new projects, with the latest being an issuance of USD 750 million in August 2021.

Gradual De-Risking and Restructuring of Legacy Businesses

Three of Orsted's five business areas in 2010 – Generation, Energy Markets, and Sales and Distribution – were restructured to primarily focus on operational efficiency. In 2015-17 the oil and gas business was restructured to focus on cash generation. The earnings and cash flows from these business areas were channelled into investments in renewable energy.

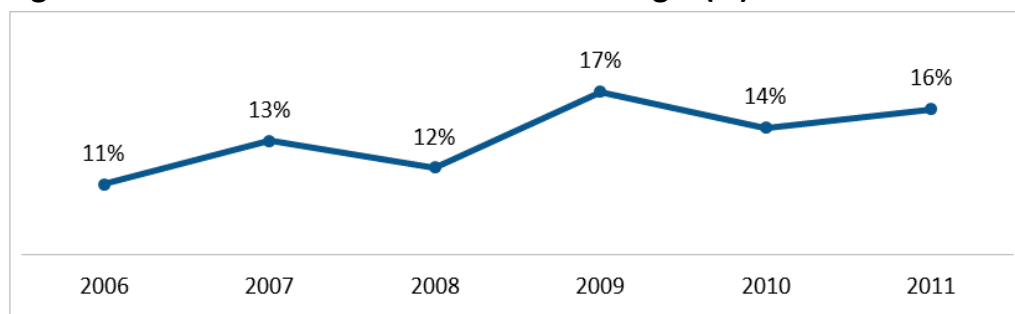
In sales and distribution, climate partnerships with business customers and municipalities were taken up. These partnerships aimed to help customers in energy savings. The company also started cross-selling green electricity supply to its Business to Business (B2B) customers, leveraging its renewable energy production. Orsted viewed 'climate partnerships' as a key competency it can offer existing and prospective customers, as they gradually emphasize environmental responsibility and procuring energy from renewable sources. These service offerings provided value-add services, along with commoditized business offerings in the distribution business. Orsted also gradually transitioned most of its Business to Business (B2B) customers to a fixed fee subscription-based tariff that reduced margin exposure to power price volatility.

Figure 19: Climate Partnerships



Source: Annual Report 2010.

Figure 20: Sales and Distribution EBITDA Margin (%)³⁶



Source: IEEFA analysis.

In the Bioenergy & Thermal Power business, the company converted Danish heat generation capacity to biomass since 2009. Focus on heat versus power generation and biomass conversions increased the proportion of EBITDA derived from regulated heat tariffs under new long-term contracts and reduced exposure to market-exposed Nordic power prices. This further increased the stability of cash flows, as a greater proportion of earnings was attributable to clean, sustainable fuel sources, where there is substantially more visibility about their future sustainability and where the company also benefitted from Danish heat tax exemptions on biomass and a power supplement.

Moreover, thermal power was used as a flexible partner for offshore wind turbines to ensure a cost-effective, stable and sustainable energy supply.

In the midstream gas business, the company renegotiated oil-indexed gas purchase contracts to decouple gas prices with oil price indexing.

³⁶ Not adjusted for intersegment sales and eliminations; Non IFRS for 2011.

Learnings for Indian Companies

Key Action Items

- ✓ **Redirecting cash flows from non-core business to grow RE business** – Conventional utilities transitioning will need to focus on growth in core businesses, which will involve restructuring non-core areas to support the development of renewable energy businesses. This will require directing all growth capital to core business, including cash generated from other segments.
- ✓ **Value added services to transition from commodity price driven business** – Utilities like Tata Power, which are present in generation and distribution, can learn from Orsted's strategy to de-risk their legacy businesses by making them operationally efficient and providing value added services like Orsted.

Examples from Indian Companies

Tata Power has a legacy coal business, CGPL, which has been a continuous drag on its profitability. After failing to divest the asset, the company has recently been optimizing its operations and trying to cut down on losses. The company also has a dedicated Energy Service Company (ESCO) business that helps commercial and industrial clients to embrace digitalisation and monitor energy savings.

Economies of Scale to Establish Cost Leadership

Orsted Is a Cost Leader

The company aims at building wind plants at a large scale to capitalize on economies of scale, and for that, it makes use of its partnership model, which helps mobilize large funds. Moreover, it has a unique multi-contracting approach with its suppliers for each project. This is something Orsted can do because of its scale, which allows dilution of overheads. The upside of this strategy is that it allows Orsted to retain a high degree of direct control and involvement with each aspect of the contract. With the ability to scrutinize all the details of the contracts both economically and technically, Orsted is able to achieve savings and efficiency improvements more rapidly than its peers. The company's size and strong relationships with suppliers have allowed it to constantly be the first mover on new wind turbine technology.

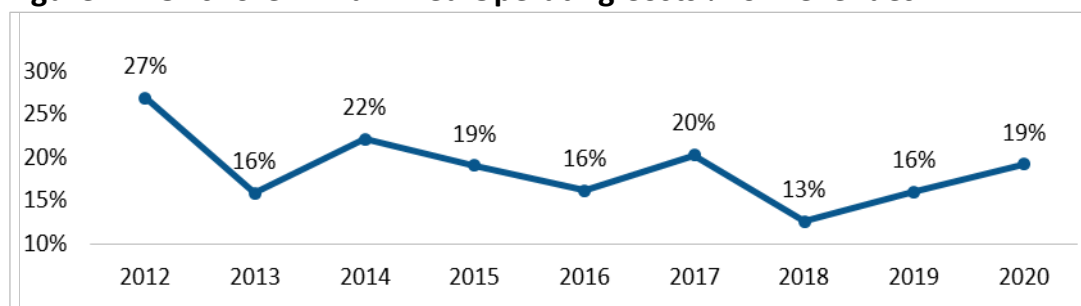
Important Partnership With Siemens and Strategic Acquisitions

An important step in establishing technological prowess and gaining invaluable experience was the partnership with Siemens in 2009, as the company wanted to bring technical exposure to offshore wind turbines. This move increased exposure to batch faults in turbines, which led to higher investment and maintenance costs and loss of profits, but it was imperative to create a niche in offshore wind while

going up the experience curve.³⁷ Orsted also acquired A2SEA, a market leader in installing wind turbines and foundations offshore and acquired an interest in the cable laying company CT Offshore in 2010.³⁸

In 2018, the company acquired the US-based onshore wind developer Lincoln Clean Energy and a leading US-based offshore wind developer Deepwater Wind to expand its business in the US.³⁹

Figure 21: Offshore Wind- Fixed Operating Costs % of Revenues⁴⁰



Source: IEEFA analysis.

Full Integration Across the Offshore Wind Value Chain

Over the years, Orsted has created an expertise in all aspects of offshore wind value chain through research and development, partnerships, and acquisitions of specialized companies. This enabled it to offer additional profit-enhancing services via the farm-down approach beyond the pure initial capital gain from the bringing in of a partner and creating additional sources of cash flows. This also provided Orsted with full control over all aspects of construction and operation of offshore wind farms.

³⁷ Orsted. Orsted annual report 2009.

³⁸ Orsted. Orsted annual report 2010.

³⁹ Orsted. Orsted annual report 2018.

⁴⁰ Non IFRS numbers.

Learnings for Indian Companies

Key Action Items

- ✓ **Leveraging economies of scale** – An important consideration for any power company is the ability to squeeze costs and improve operational performance to be more competitive. This is even more true from an Indian context, where average tariffs have been continuously falling given the stiff competition. Here Orsted's strategy of cost leadership and scale is a good example, as the renewable sector is capital intensive, and players with cost leadership and scale will be more competitive and sustain in the long run.
- ✓ **Technological innovation and adoption** – Renewable energy technology is constantly evolving, either wind or solar. Companies that can leverage the cost savings and efficiency that it brings will be better positioned to remain future competitive. Thus, a key consideration for Indian companies will be to stay ahead of the curve in terms of technology adoption, as done by Orsted.

Examples from Indian Companies

From an Indian context, there are ample examples of players integrating across the value chain.

NTPC has its captive mines and ACQ's with Coal India Limited to reduce raw material costs and supply shocks.

Adani green carries out the entire development planning, construction, and operation of projects in-house and has a centralized O&M monitoring system ENOC, which helps squeeze operating costs across its plants.

Renew Power recently forayed into solar manufacturing, which will provide it greater control over capital costs.

Focus on Sustainability-Related Disclosures

The company has been a frontrunner in sustainability-related disclosures. It joined the UN Global Compact in 2006 and started applying its ten principles annually submitting its Communication on Progress report (COP report). It was reporting on its corporate responsibility performance, in accordance with the Global Reporting Initiative (GRI), an internationally recognised sustainability reporting framework since 2009.⁴¹

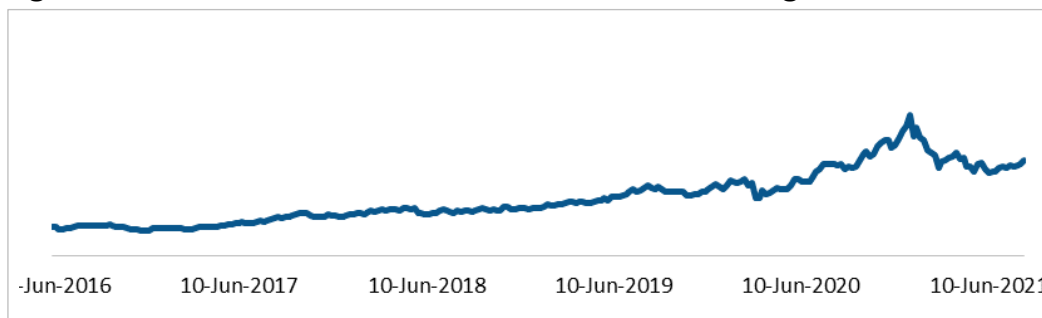
**Orsted has been
a frontrunner in
sustainability-related
disclosures.**

⁴¹ Orsted. Orsted annual report 2006 & 2009.

Orsted integrated non-financial key performance indicators into its annual report for the first time in 2009 because of new requirements in Denmark. Large companies must report on corporate responsibility in their annual reports.

Orsted started disclosing its Environmental Social Governance (ESG) performance in 2017 and has been utilising frameworks and principles most widely accepted like the UN Sustainable Development Goals (SDG) references to ESG indicators, where the company focusses on advancing two of the SDGs, namely 7 (clean and affordable energy) and 13 (fighting climate change) and by consequence contributing significantly to SDG 8 (economic growth). Since 2018, Orsted also started incorporating Task Force on Climate-Related Financial Disclosures (TCFD) recommendations in its disclosures.⁴²

Figure 22: Orsted Share Price Performance Since Listing



Source: IEEFA analysis.

Figure 23: ESG Ratings of Orsted

ESG ratings of Ørsted		
Rating agency	Score	Benchmark
	A	Highest possible rating and recognised as a global leader on climate action
	AAA	Highest possible rating for four consecutive years
	B+	No. 1 of all utilities and awarded highest possible 'Prime' status
	80	Platinum Medal for being among top 1% of companies assessed by EcoVadis

“There was a period about seven or eight years ago when every fund had Apple,” said Mark Freshney, analyst at Credit Suisse. “And it’s a little bit like that in utilities with Orsted.”

- Financial Times, Feb 20, 2021

Source: Orsted ESG Presentation 2020.

⁴² Orsted annual report 2017 & 2018.

An early advantage for the company, which stemmed from its sustainability-related disclosures, was it aligned to its strategy of lowering its carbon footprint through transitioning to a renewable business. By disclosing tangible changes in parameters, like reducing GHG emissions or achieving energy efficiency, the company could not deter its focus.

Moreover, a good ESG score and transparent ESG disclosures will help Orsted tap the growing pool of global capital that wants to invest in ESG compliant companies and provide it with capital to fuel its expansion plans. This can be gauged by the company's market capitalization, which has soared by 270% from December 2017 to December 2020⁴³, even though earnings haven't kept up.

Learnings for Indian Companies

Key Action Items

- ✓ **Transparent and exhaustive sustainability disclosures** – *The pool of ESG led investors are rapidly growing around the world. There has never been a better time for Indian energy companies to capitalize on the frameworks and principles used by sustainability champions like Orsted. Transparent disclosures will avoid investor concerns with greenwashing, and exhaustive information, like those prescribed by the TCFD will help investors with proper evaluations from an ESG standpoint.*

Examples from Indian Companies

From an Indian perspective, ESG is a relatively new concept, and disclosures by Indian power companies have started to improve only since 2019. SEBI, the country's securities and exchange regulator has come out with a draft Business Responsibility and Sustainability Report (BRSR).ⁱ The norms listed for Indian companies, which include ESG related risks and opportunities, are part of the disclosures. These norms will bring more transparency to sustainability-related disclosures and help sustainability driven investors to evaluate companies from an ESG lens.

Currently, **NTPC**, **Tata Power** and **AGEL** are among the companies making ESG disclosures, leveraging industry best frameworks and principles.

ⁱ SEBI. [Business responsibility and sustainability reporting by listed entities](#). May 2021.

Role of Government Policy and Climate Action

Denmark was among the early pioneers of the energy transition, having mandated no new coal projects in 1997. The country supported offshore wind technology

⁴³ Refinitiv. Orsted A/S | Ratios. July 2021.

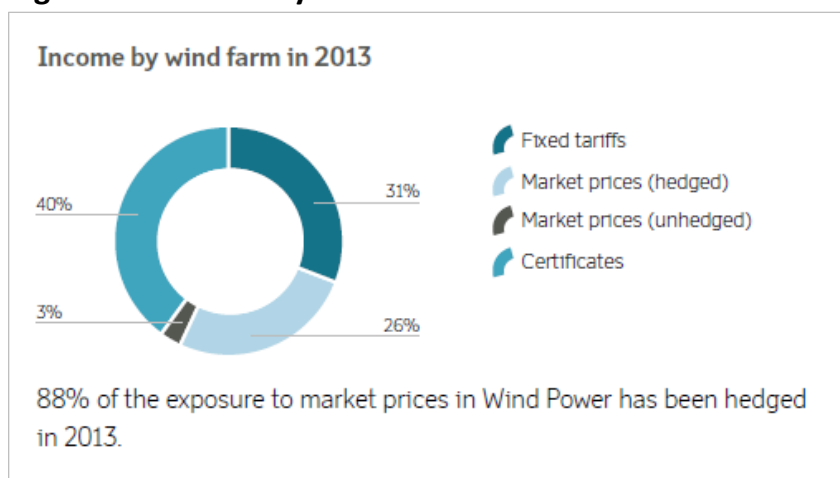
through R&D spending, while directing energy companies to expand onshore wind as early as 1996. Denmark was active on climate action, being among the first countries to implement CO2 reduction plans and taxing GHG emissions.⁴⁴

Orsted's bold move to transition away from coal was majorly supported by the subsidy support system prevalent in its main markets of UK, Denmark, Poland, and Germany initially, and USA, Taiwan and South Korea more recently when it expanded outside of continental Europe.

Subsidy schemes in the UK and Poland were based on the award of tradeable green certificates, while in Denmark, a fixed minimum payment per megawatt hour (MWh) generated was received.

In 2011, around two-thirds of revenue came from government revenue schemes, with fixed tariffs (primarily Denmark) and guaranteed minimum prices for green certificates (mainly the UK). The rest of the revenue in 2011 was sold at market prices, but as a large portion was hedged at fixed prices, the development of the electricity price had a limited effect on revenue.⁴⁵

Figure 24: Income by Wind Farms 2013



Source: Orsted Annual Report 2012.

A stable subsidy scheme provided revenue visibility and stability, which was the bedrock of the company's innovative farm-down approach. Further, it helped Orsted's portfolio transition from a market exposed commoditized business to a stable business with substantially lower market risk. Moreover, policy changes in Denmark in favour of renewable energy provided natural tailwinds for Orsted's transition.

⁴⁴ OECD. [Denmark - Regulatory Reform in Electricity](#). 1999.

⁴⁵ Orsted. Orsted annual report 2011.

Learnings for Government

Key Action Items

- ✓ **Bold actions from a policy front to support a green transition** – A significant point of contention for India has been the bottlenecks faced in the implementation of policy changes on the ground, from renewable purchase obligations (RPO) enforcement to maintaining the sanctity of PPAs by discoms. Government action to weed out these problems will be key to fulfilling the country's RE goals.

Examples from Indian Government

The Indian government has long provided a helping hand to the renewable energy sector through various means that have helped the country scale up its generation capacity multifold. Some of the major policy related measures include:

1. **Jawaharlal Nehru National Solar Mission (Phase I, II and III)** – The initiative, first launched in 2010, aims to increase solar capacity in the country, by creating policy conditions favourable to achieve its goals. The current goal is to install a solar base of 100GW by 2022.
2. **Accelerated Depreciation Scheme** – This scheme, which allowed renewable generation companies to claim higher depreciation in earlier years, helped wind power massively expand in the country in its early years, and later helped facilitate the growth of solar capacity.
3. **Ensuring long-term PPAs to prevent offtake risks** – 25-year PPAs in renewable energy auctions, provide visibility of cash flows to investors and help stimulate investment.
4. **Waiver of interstate transmission charges for renewable energy** – Ministry of Power has provided an exemption on transmission charges for RE producers until 2025 making renewable energy more competitive.
5. **Setting up RPO targets** – RPO requires distribution companies to source part of their requirements from renewable sources, increasing demand.
6. **Generation Based Incentives (GBI)** – The GBI scheme, which provides generation and outcome-based incentive to wind producers, aims to facilitate investments in the sector.
7. **Solar Viability Gap Funding (VGF) scheme** – The scheme provides grants for solar projects which are economically justified but are not financially feasible.
8. **Tax Incentives** – Various tax incentives like income tax exemption for the first ten years of operation, excise duty waiver on the import of certain components and raw materials, and lower Goods and Services Tax (GST) have also helped create conditions conducive for growing the RE sector.

Moreover, investments in transmission and distribution infrastructure, strengthening government agencies like SECI and IRDEA through budgetary support, and weeding out structural issues in the power sector, have been major steps towards making the renewable energy sector more competitive.

Conclusion

Energy markets around the globe are undergoing an unprecedented transformation, with renewable energy making inroads as the energy source of the future, and climate action gaining more steam to wade out fossil-fuel based generation. This renewed focus on advancing clean energy technologies has clouded the future of conventional utilities, which have no option but to transition or face the wrath of financial markets, regulators, and climate activists alike.

India, which is among the fastest growing large economies, will require massive amounts of new energy sources to fuel its burgeoning economy, while keeping the costs of energy low and with a low carbon footprint. The Indian government, wary of this fact, has embarked upon one of the most extensive clean energy drives in the world, with commitments to have 450GW of renewable energy capacity by the end of this decade. The Indian public utility sector, along with its private counterparts, will have a huge role to play in realising this massive goal. Major utilities such as NTPC Limited and Tata Power have already committed to a green transition, evident in their capital expenditure plans and strategic roadmaps. The financial markets have cheered these commitments, as evident in the share price performance of these two companies. Besides, pure play renewable energy companies like Adani Green Energy Limited and Renew Power present examples of the private sector realising the potential of this sector and its ability to create enormous returns for its shareholders.

Going forward, the ability of Indian companies to walk the talk and undertake a profitable transition or growth journey will be paramount to attract capital and grow shareholder wealth. Orsted, which has already championed the green energy transition journey, provides valuable lessons for Indian companies, which may face several of the same challenges and opportunities as Orsted. A focussed approach, with a result driven management and board, will help mobilize or shift capital to the energies of the future, and help India realize its renewable energy goal, while helping to create enormous value for incumbent players in the industry.

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The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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