

WORLD ENERGY INVESTMENT OUTLOOK 2014 FACTSHEET

POWER SECTOR

- ▶ **Global investment in the power sector increased almost two-and-a-half times from \$290 billion in 2000 to \$690 billion in 2011, tailing off since.** Investment in power generation capacities more than tripled from \$130 billion to peak at \$440 billion in 2011. It declined by 5% in 2012 and by another 3% in 2013, largely due to cost reductions in variable renewables technologies. Investment in renewable energies accounted for almost 60% of the total power plant investment over 2000-2012 while the remainder was spent on thermal power plants (fossil-fuels and nuclear).
- ▶ **Over 2014-2035, cumulative investment of \$16.4 trillion is needed across the power sector – an annual average of \$740 billion per year.** About 58% of power sector investment is allocated to the construction of new power plants and refurbishment of existing ones; the remainder is used to build and refurbish T&D networks. OECD countries account for \$6.2 trillion, mainly to replace ageing infrastructure and meet decarbonisation targets. In non-OECD countries, governments need to facilitate a larger role for private capital to raise the \$10 trillion needed to expand networks and generation capacity to meet rapid demand growth.
- ▶ **More than 60% of the global power plant investments over 2014-2035 are spent on renewables while fossil-fuelled plants account for almost 30% and nuclear for the remainder.** Wind accounts for 34% of the expenditure on renewables followed by hydro (26%) and solar PV (22%). Coal leads the investment in fossil-fuelled plants garnering 58% of the expenditure, with gas accounting for almost all of the remainder. Around 60% of the global power plant investments are in non-OECD countries, most to meet new demand while OECD countries invest in capacity primarily to replace units that retired or to decarbonise the power mix.
- ▶ **The share of investment in competitive parts of electricity markets fell from about one-third of the global total in the early 2000s to about 10% today.** With current market designs, competitive parts of markets require less than \$1 trillion of cumulative investment to 2035 out of the total power sector needs of \$16.4 trillion. Ownership of global installed capacity is divided equally between governments and the private sector (often large utilities). The increase of small and distributed renewables reduces the share of utilities, and will rely more on debt financing.
- ▶ **In Europe, cumulative investment of \$2.2 trillion (second only to China) is needed to replace ageing infrastructure and meet decarbonisation goals.** Renewables account for 75% of the investment in new power plants to 2035. Despite excess capacity today, 100 GW of new thermal capacity are needed in the decade to 2025 to maintain the reliability of power systems. Reform of the wholesale market will be critical to make this a reality, as we estimate that wholesale prices in 2013 are \$20/ MWh (or 23%) below the level that would incentivise needed investments.
- ▶ **In India, the state owns most installed capacity and networks, but private capital will play a larger role in the \$1.6 trillion of power sector investment to 2035.** Despite a doubling of generation since 2000, 9% of electricity demand was unmet in 2013, hindering economic growth. With high T&D losses (27%) and low regulated end-user tariffs, utilities incurred losses of \$14 billion in 2011-2012. If T&D losses were reduced to the target level of 15%, average tariffs would need to increase by some than 5% for utilities to be financially solvent.
- ▶ **Decarbonising the power sector to meet global climate targets requires cumulative investment of \$19.3 trillion, 18% more than in the New Policies Scenario.** Investment in low-carbon technologies needs to triple from \$255 billion today to \$730 billion in 2035, three-quarters for renewables. Well-designed policies and new financing vehicles could help lower the cost of capital, a reduction of three percentage points after 2020 would make renewables more competitive, cutting subsidies by over 20% to 2035.