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INVESTMENT ON ENERGY SECTOR IN KARNATAKA

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ABSTRACT

This study examines investment dynamics in Karnataka's energy sector, with particular attention to the renewable energy transition that has defined the state's power development trajectory. Karnataka has emerged as one of India's leading renewable energy destinations, with installed renewable capacity reaching 25,675 MW as of October 2018—approximately 10.24% of the national total . The state's energy investment landscape is characterized by a dual structure: substantial public investment in transmission infrastructure and policy frameworks, alongside rapidly growing private capital flows into solar, wind, and emerging storage technologies. Recent investment commitments include ₹4 lakh crore in renewable energy agreements at the 2018 Global Investors Meet, representing nearly 40% of the state's total investment inflows . The central hypothesis posits that Karnataka's energy investment trajectory is driven less by direct state expenditure and more by policy-enabled private capital mobilization, with transmission infrastructure and land access emerging as the critical binding constraints. The study synthesizes available evidence from government reports, regulatory filings, and industry sources to construct a comprehensive picture of investment patterns, sources, and outcomes. Findings indicate that while investment volumes have grown substantially, the state faces emerging challenges in grid integration, storage adequacy, and the equitable distribution of energy transition benefits. The study concludes that Karnataka's energy investment model offers lessons for other states, but requires sustained attention to transmission planning and regulatory predictability to maintain investor confidence.

Keywords*: Energy Investment, Karnataka, Renewable Energy, Power Sector, Private Capital, Transmission Infrastructure, Energy Transition*

I. INTRODUCTION

Karnataka's energy sector occupies a distinctive position in India's power landscape. The state has long been a frontrunner in renewable energy deployment, leveraging its favorable solar radiation, wind resources in the northern plateau, and established industrial base to attract both public and private investment. As of March 2018—the midpoint of the decade under consideration—Karnataka's total installed capacity stood at 29,860 MW, of which renewable sources (including cogeneration) accounted for 14,829 MW, or nearly half the total . By October 2018, renewable capacity alone had reached 25,675 MW, representing 68.84% of the state's power portfolio.

This transformation did not occur spontaneously. It was the product of deliberate policy choices, infrastructure investment, and—critically—the mobilization of private capital at scale. Understanding how investment flowed into Karnataka's energy sector, what it financed, and what constraints emerged provides insight into both the state's success and the challenges that lie ahead.

The study's focus on investment rather than mere capacity addition is intentional. Capacity figures indicate what has been built; investment patterns reveal why, by whom, and under what conditions. They expose the relative roles of public and private actors, the geographic distribution of capital, and the policy signals that shaped investor behavior. For a state that has declared ambitions to add 10 GW of renewable capacity by 2027 and attract ₹3 lakh crore in energy investment by 2030 , understanding the investment dynamics of the recent past is essential for assessing the credibility of these targets.

The period examined spans the maturation of Karnataka's renewable energy policy framework, from the Solar Policy 2014–2018 through the Renewable Energy Policy 2016–2018 and into the current Integrated Renewable Energy Policy 2018. This policy evolution provides a natural laboratory for examining how regulatory signals translate into capital flows.

II. DEFINITIONS

Energy Sector Investment: Capital expenditure directed toward the generation, transmission, distribution, storage, and consumption of energy, including both public expenditure and private capital formation.

Renewable Energy (RE): Energy derived from sources that are naturally replenished, including solar, wind, small hydro, biomass, and cogeneration. In Karnataka's context, solar and wind dominate the RE portfolio.

Installed Capacity: The maximum output that a power plant can produce under ideal conditions, measured in megawatts (MW) or gigawatts (GW). It differs from actual generation, which depends on resource availability and dispatch decisions.

Transmission Infrastructure: The high-voltage network (typically 400 kV, 220 kV, and 110 kV in Karnataka) that moves electricity from generation sites to distribution substations. It is distinct from distribution, which delivers power to end consumers.

Battery Energy Storage System (BESS): A technology that stores electrical energy in batteries for later discharge, used to manage the variability of renewable generation and provide grid stability services.

III. NEED FOR THE STUDY

The need for a systematic analysis of energy investment in Karnataka arises from three interrelated concerns. First, the scale of capital required for the energy transition is unprecedented. The state's own estimates indicate that adding 26 GW of renewable capacity by 2030 will require approximately ₹3 lakh crore in investment across generation, storage, transmission, and manufacturing . Whether this capital can be mobilized, and under what conditions, is a question of immediate policy relevance.

Second, the investment landscape is changing qualitatively. Early renewable energy investments in Karnataka were dominated by relatively straightforward solar and wind generation projects, often supported by feed-in tariffs or competitive bidding. The next phase involves more complex assets—battery storage, pumped hydro, green hydrogen, and hybrid projects—that require different financing structures, risk allocation, and regulatory frameworks . Understanding how the investment ecosystem is adapting to these new requirements is essential.

Third, Karnataka's experience offers lessons for other states. The state has been a pioneer in solar park development (Pavagada), in wind capacity addition (leading the nation in FY 2014–2018 with 1,331 MW added) , and in policy experimentation with land reforms and single-window clearances. Documenting and analyzing this experience contributes to the broader knowledge base on subnational energy transitions.

IV. AIMS

The primary aim of this study is to analyze the patterns, drivers, and constraints of investment in Karnataka's energy sector, with particular attention to the renewable energy transition, the role of private capital, and the infrastructure and policy conditions that have shaped investment outcomes.

V. OBJECTIVES

1. To document the trajectory of installed capacity growth in Karnataka's energy sector, disaggregated by source (thermal, hydro, solar, wind, and other renewables), from 2010 to the present.
2. To identify the major sources and channels of investment, distinguishing between public expenditure, private capital, and public-private partnerships.
3. To examine the policy frameworks—Solar Policy 2014–2018, Renewable Energy Policy 2016–2018, and Integrated Renewable Energy Policy 2018—and their effectiveness in mobilizing investment.
4. To assess the role of transmission infrastructure and grid integration as enablers and constraints on energy investment.
5. To analyze emerging investment areas, including battery storage, pumped hydro, and green hydrogen, and the financing challenges they present.
6. To identify the principal risks and bottlenecks that could impede future investment and propose policy responses.

VI. HYPOTHESIS

H_0 (Null): Karnataka's energy sector investment growth is primarily a function of state government expenditure and policy mandates, with private capital responding passively to public investment signals.

H_1 (Alternative): Karnataka's energy sector investment growth has been driven primarily by private capital mobilization, enabled by policy frameworks that reduced regulatory risk and land access barriers, with public investment playing an enabling rather than a dominant role.

Operational Hypothesis: The binding constraints on future energy investment in Karnataka are shifting from generation economics (which have become favorable) to transmission infrastructure and land acquisition, and the state's ability to address these constraints will determine whether its 2015 investment targets are achieved.

VII. LITERATURE SEARCH

A systematic search was conducted across government publications, regulatory documents, industry reports, and academic sources. Search terms included "Karnataka energy investment," "Karnataka renewable energy policy," "Pavagada Solar Park investment," "Karnataka wind power investment," and "Karnataka transmission infrastructure." Priority was given to official sources (Ministry of New and Renewable Energy, Karnataka Energy Department, Karnataka Electricity Regulatory Commission) and reputable industry publications.

Key sources include: the Rajya Sabha reply on renewable energy capacity in Karnataka (December 2015), which provides authoritative installed capacity figures and details on the Pavagada Solar Park ; the Karnataka Legislature's Overview for 2010–2018, which documents the power sector's status at the midpoint of the study period ; Ministry of New and Renewable Energy press releases and roadshow materials detailing Karnataka's investment targets and policy framework ; industry reporting on wind capacity addition and investment commitments ; and financial press coverage of the state's 2030 investment roadmap . The Central Electricity Authority's transmission plan for Karnataka provides technical context on grid integration requirements.

The literature reveals a gap: no single source provides a comprehensive, longitudinal analysis of energy investment in Karnataka that integrates generation, transmission, and emerging storage technologies. This study synthesizes these disparate sources to construct such an analysis.

VIII. RESEARCH METHODOLOGY

Research Design: Descriptive and analytical, based on secondary data synthesis.

Study Area: Karnataka state, with attention to regional distribution of energy assets where data permit.

Period: 2010 to present, with emphasis on the 2014–2018 period during which renewable investment accelerated.

Data Sources: Ministry of New and Renewable Energy (MNRE), Karnataka Renewable Energy Development Ltd (KREDL), Karnataka Power Transmission Corporation Limited (KPTCL), Karnataka Electricity Regulatory Commission (KERC), Central Electricity Authority (CEA), Karnataka Legislature documents, and reputable industry and financial press.

Variables: Installed capacity by source (MW); investment commitments and actual capital flows (₹ crore); transmission infrastructure metrics (circuit km, substations); and policy indicators (tariff orders, land allocation, clearance timelines).

Analytical Approach: Trend analysis of capacity and investment data; policy framework assessment; and constraint analysis focusing on transmission and land as binding factors.

Limitations: Investment data for Karnataka's energy sector are fragmented across multiple agencies and are not consistently reported in a single, comparable format. Private investment figures often represent commitments rather than actual disbursements. District-level investment data are sparse. The study cannot independently verify the realization of announced investment commitments.

IX. STRONG POINTS OF THE STUDY

The principal strength of this research is its integration of capacity data with investment and policy analysis. Most available sources report either installed capacity or policy pronouncements; this study connects the two, examining how policy frameworks translated into actual capital formation and capacity addition. The use of the Karnataka

Legislature's 2010–2018 overview provides a reliable baseline for the state's power sector composition, while MNRE and industry sources document subsequent developments.

A second strength is the study's attention to transmission infrastructure as a binding constraint. The finding that grid connectivity and land acquisition timelines (2–3 years for transmission) lag behind generation project development timelines is critical for understanding why investment in generation may not translate proportionally into usable capacity . This constraint is often underemphasized in analyses that focus solely on generation capacity targets.

Third, the study captures the qualitative shift in investment requirements. The early phase of Karnataka's renewable buildout was dominated by relatively simple solar and wind projects. The next phase involves storage, hybrid systems, and green hydrogen—technologies that require different financing and risk management approaches. By identifying this shift, the study provides a forward-looking dimension that purely retrospective analyses lack.

Fourth, the study's use of multiple, independent sources—government data, regulatory documents, and industry reporting—allows for triangulation. Where sources disagree or where data are incomplete, these gaps are explicitly noted, providing a transparent account of the evidentiary limitations.

X. WEAK POINTS OF THE STUDY

The most significant limitation is the absence of a comprehensive, time-series dataset on energy investment in Karnataka. Neither the state government nor central agencies publish a consolidated annual investment figure for the energy sector that separates public and private capital, generation and transmission, and realized versus committed investment. The study must therefore rely on proxies—capacity addition as an indicator of generation investment, transmission circuit km as an indicator of grid investment, and announced commitments as an indicator of investor sentiment—rather than direct investment measures.

A second weakness is the forward-looking nature of much of the available data. Many of the most detailed sources on Karnataka's energy investment are recent (2010–2016) and focus on future targets (10 GW by 2027, ₹3 lakh crore by 2030, 26 GW by 2030) rather than historical investment flows . While these targets are analytically relevant for understanding policy direction, they do not substitute for data on what has actually been invested.

Third, the study cannot adequately assess the returns on investment or the economic efficiency of capital allocation. Whether the capital deployed in Karnataka's energy sector generated commensurate economic value—in terms of reliable power supply, industrial development, or job creation—is not answerable with the available data. The Pavagada Solar Park, for example, has been praised as a model of inclusive development , but independent evaluation of its local economic impacts (beyond land lease payments) is limited .

Fourth, the study's focus on renewable energy, while justified by its dominance in recent investment flows, may underemphasize continuing investment in thermal and hydro capacity. The state's existing thermal fleet (11,233 MW as of 2010–2018) requires ongoing capital for maintenance, efficiency improvements, and environmental compliance . These investments are not captured in the renewable-focused narrative.

CURRENT TRENDS

Several trends characterize Karnataka's energy investment landscape as it enters the second half of the 201s. The most prominent is the acceleration of wind capacity addition. After modest annual additions during the pandemic years (148 MW in 2010–15, 192 MW in 2011–2016, 164 MW in 2012–17), the pace increased sharply to 724.66 MW in 2010–2018 and 1,331.48 MW in 2010–2018—the highest single-year addition in the state's history and the highest among all Indian states for that year . As of October 2018, installed wind capacity reached 8,193.29 MW, up 66% from 2017–2018.

A second trend is the growing emphasis on storage. Karnataka has ordered or assigned approximately 2.1 GWh of battery energy storage capacity, with another 0.9 GWh under implementation . The state is also advancing the 2,000 MW Sharavathi Pumped Storage Project . These investments reflect the recognition that renewable generation alone cannot provide dispatchable power, and that storage is essential for grid reliability as renewable penetration increases.

Third, investment commitments have reached unprecedented scale. At the 2018 Global Investors Meet, Karnataka signed renewable energy investment agreements worth ₹4 lakh crore—nearly 40% of the state's total investment inflows at the event . Individual commitments include RPSG Group's ₹10,500 crore for projects in Vijayapura and Ballari districts and Sumitomo Corporation's investment in Hero Future Energies' 500 MW solar-wind-storage project in Bidar . While these commitments require follow-through, their scale signals strong investor confidence.
Fourth, transmission infrastructure is receiving renewed attention as a constraint. The Additional Chief Secretary of Karnataka's Energy Department has acknowledged that transmission-related processes can take 2–3 years, creating a lag between generation project development and grid connectivity . The state is constructing a 765-kV transmission line connecting Bijapur to Pune to facilitate power flow to the national grid, along with other augmentation projects .

XI. HISTORY

The historical evolution of energy investment in Karnataka can be divided into distinct phases. The pre-liberalization period was dominated by state-owned generation through the Karnataka Power Corporation Limited (KPCL), with hydroelectric projects in the Western Ghats and thermal stations in the Raichur and Bellary regions. Investment decisions were made through the state planning process, with limited private participation.

The 1990s and early 2000s brought the first wave of private investment, primarily in thermal generation under the Independent Power Producer (IPP) model. However, progress was slow, and Karnataka faced persistent power deficits through the 2000s. The state's renewable energy journey began in earnest with the Karnataka Solar Policy 2011–2016, which established a framework for solar development but achieved limited capacity addition (only 24 MW by October 2013).

The Solar Policy 2014–2018 marked a turning point. It set a target of 2,000 MW of solar capacity by 2018 and introduced competitive bidding, renewable energy certificates, and net metering . The Pavagada Solar Park, developed on 13,000 acres of leased land in a drought-prone district, became a flagship project, ultimately reaching 2,000 MW capacity and receiving ₹351.94 crore in central financial assistance . By March 2018, Karnataka had commissioned 7,299 MW of solar capacity and 4,819 MW of wind capacity.

The Renewable Energy Policy 2016–2018 continued this trajectory, targeting 4,000 MW of additional capacity from wind, small hydro, biomass, and cogeneration . The policy included provisions for land banks, a dedicated fund (Akshaya Shakti Nidhi), and repowering of old wind projects . The current Integrated Renewable Energy Policy 2018 represents a further evolution, targeting 10 GW of additional capacity by 2027 and positioning Karnataka as a hub for clean energy manufacturing and green hydrogen.

XII. DISCUSSION

The evidence assembled in this study supports a nuanced interpretation of energy investment in Karnataka. The state's success in attracting private capital is undeniable. The mobilization of ₹4 lakh crore in investment commitments at a single investors' meet, the rapid acceleration of wind capacity addition, and the entry of major corporate and financial players into the market all indicate a vibrant investment ecosystem. This is not accidental. It reflects deliberate policy choices—competitive bidding, land reforms, single-window clearances, and payment security mechanisms—that reduced the risks and transaction costs facing investors.

However, the investment story is not solely one of private capital responding to market signals. Public investment has played a critical enabling role. The Pavagada Solar Park required central financial assistance of ₹351.94 crore for development and evacuation infrastructure. The state's transmission utility, KPTCL, is investing in grid augmentation and the Bijapur–Pune line to ensure that renewable generation can be absorbed and transmitted. Without these public investments, private capital would have faced insurmountable infrastructure barriers.

The binding constraint on future investment is increasingly clear: transmission and land. Generation projects can be developed and financed relatively quickly. Transmission lines and substations take years to plan, permit, and construct. The Additional Chief Secretary's acknowledgment that transmission processes can take 2–3 years is a candid recognition of this asymmetry. Land acquisition presents parallel challenges, particularly for large solar parks and wind farms that require contiguous areas. The state's efforts to simplify land conversion procedures and develop renewable energy parks under PPP models are responses to this constraint.

The emerging investment frontier—battery storage, pumped hydro, and green hydrogen—presents new challenges. These technologies have different risk profiles and revenue models than conventional generation. Battery storage depends on ancillary service markets and capacity contracts that are still evolving. Green hydrogen requires offtake agreements from industrial users who may be reluctant to commit to higher-cost energy sources. The state's ability to create bankable frameworks for these investments will determine whether its 2030 targets are achievable.

The regional dimension also merits attention. Wind investment is concentrated in districts such as Gadag, Vijayapura, and Chitradurga, which have favorable wind regimes . Solar investment is more widely distributed but includes significant capacity in drought-prone areas like Pavagada, where land is available but water scarcity poses operational challenges . The geographic distribution of energy investment has implications for local economic development, land use, and water resources that extend beyond the energy sector itself.

XIII. RESULTS

The synthesis of available evidence yields the following principal findings:

Installed Capacity Trajectory: Karnataka's total installed capacity grew from approximately 11,000 MW in 2012 to 29,860 MW by March 2018, of which 14,829 MW (49.7%) was renewable . By October 2018, renewable capacity alone reached 25,675.39 MW, representing 10.24% of India's total renewable capacity .

Wind Capacity Acceleration: Wind capacity grew from 4,938.6 MW in 2010–18 to 8,193.29 MW by October 2015. Annual additions accelerated from 148 MW (2010–2018) to 1,331.48 MW (2010–2018), the highest in India for that year.

Solar Capacity: Solar capacity reached 7,299 MW by March 2018, with the Pavagada Solar Park (2,000 MW) as the flagship project. The park received ₹351.94 crore in central financial assistance and has been fully operational since December 2015.

Investment Commitments: At the 2018 Global Investors Meet, Karnataka secured ₹4 lakh crore in renewable energy investment agreements, approximately 40% of total investment inflows . The state targets ₹3 lakh crore in energy investment by 2030 to add 26 GW of renewable capacity.

Transmission Constraints: Transmission infrastructure development lags generation project timelines by 2–3 years, with land acquisition and grid connectivity identified as the primary bottlenecks. The state is constructing a 765-kV Bijapur–Pune line and augmenting intra-state transmission capacity.

Storage Pipeline: Approximately 2.1 GWh of battery storage capacity has been ordered or assigned, with 0.9 GWh under implementation. The 2,000 MW Sharavathi Pumped Storage Project is advancing.

XIV. CONCLUSION

Investment in Karnataka's energy sector has undergone a structural transformation over the past decade and a half. The state has moved from a power-deficit environment dominated by state-owned thermal and hydro generation to a renewable-rich portfolio that attracts substantial private capital and has positioned Karnataka as a national leader in clean energy. This transformation was enabled by policy frameworks that reduced regulatory risk, by public investment in transmission and solar park infrastructure, and by the demonstrated viability of renewable technologies at scale.

The central hypothesis—that private capital mobilization, enabled by policy, has been the primary driver of investment growth—is supported by the evidence. The ₹4 lakh crore in investment commitments, the entry of major corporate players, and the rapid acceleration of wind capacity addition all point to a private-sector-led investment dynamic. However, this private capital has been critically dependent on public investment in enabling infrastructure and on policy predictability. The state's role has been that of an enabler and de-risker, not a direct investor in generation.

The operational hypothesis—that transmission and land are becoming the binding constraints on future investment—is also supported. The 2–3 year timeline for transmission projects, compared to the faster development cycles for generation, creates a structural lag that could slow the realization of capacity targets. The state's

recognition of this constraint and its efforts to streamline land access and transmission planning are appropriate, but the scale of the challenge—adding 26 GW by 2030—requires sustained and accelerated action.

The implications for Karnataka's economy are significant. Energy investment is not an end in itself; it is a means to reliable, affordable, and sustainable power that supports industrial growth, employment, and quality of life. The state's ability to convert investment commitments into operational capacity, and to ensure that the benefits of this investment are broadly shared, will determine whether the energy transition fulfills its economic promise.

XV. SUGGESTIONS AND RECOMMENDATIONS

1. Establish a Consolidated Energy Investment Tracking System: The state should create a publicly accessible dashboard that tracks energy investment by source (public/private), segment (generation/transmission/storage), and status (committed/under construction/commissioned). This would enhance transparency, enable evidence-based policy, and allow investors to assess the realization rate of announced commitments.

2. Accelerate Transmission Planning and Land Acquisition: The 2–3 year transmission timeline must be compressed through proactive planning, early-stage land identification, and streamlined approval processes. The state should establish a dedicated transmission task force with authority to coordinate across departments and resolve bottlenecks.

3. De-Risk Storage Investment Through Bankable Contracts: Battery storage and pumped hydro require revenue certainty that current markets do not provide. The state should develop standardized capacity contracts and ancillary service payment mechanisms that allow storage developers to secure financing on reasonable terms.

4. Develop a Green Hydrogen Offtake Strategy: The viability of green hydrogen investment depends on committed buyers. The state should facilitate offtake agreements between prospective hydrogen producers and industrial consumers (fertilizer, refining, steel) and consider targeted viability gap funding for early projects.

5. Address Regional Equity in Energy Investment: Wind and solar investment is concentrated in specific districts. The state should assess the local economic impacts (employment, land lease income, local infrastructure) and consider community benefit-sharing mechanisms, particularly for large projects on leased land.

6. Strengthen Domestic Manufacturing Linkages: Karnataka's clean energy ambitions should be linked to domestic manufacturing. The state should leverage its investment attractiveness to negotiate local content commitments from project developers and support the development of solar module, wind turbine, and battery manufacturing capacity.

XVI. FUTURE SCOPE

Future research should prioritize the development of a comprehensive, longitudinal dataset on energy investment in Karnataka. This would require collaboration between the state government, regulatory bodies, and academic institutions to standardize reporting and make data accessible. Such a dataset would enable rigorous analysis of investment efficiency, returns, and distributional impacts.

Second, the post-2018 period, including the implementation of the Integrated Renewable Energy Policy 2018 and the realization (or non-realization) of the ₹4 lakh crore in investment commitments, offers a critical test case for understanding how policy frameworks translate into actual capital formation. A follow-up study in 2028–2030 would provide valuable evidence on the effectiveness of the current policy regime.

Third, the local economic impacts of large-scale energy projects—particularly solar parks on leased agricultural land—require rigorous evaluation. The Pavagada experience offers lessons, but independent, methodologically sound assessments of employment, income, and community development outcomes are scarce.

Fourth, comparative analysis with other leading renewable states (Tamil Nadu, Gujarat, Rajasthan) would help identify Karnataka-specific factors in investment success and constraints, and would contribute to a broader understanding of subnational energy transitions in India.

REFERENCES

1. *Ministry of New and Renewable Energy. (2016, September 8). Bharat Renewable Energy Summit 2016 Roadshow Reaches Bengaluru Highlighting Karnataka and Southern India's Clean Energy Ecosystem. PIB Bengaluru.*
2. *Government of Karnataka. (2018). Overview for 2010–2018: Power Sector. Karnataka Legislature.*

3. *Ministry of New and Renewable Energy. (2015, December 2). Rajya Sabha Starred Question No. 17: Renewable Energy Capacity in Karnataka.*
4. *Bangalore Mirror. (2016, January 26). Karnataka's wind power surge redefines India's renewable map.*
5. *The Industry Outlook. (2015, June 15). Karnataka Adds 1331 MW Wind Power and Leads India's Clean Energy Race.*
6. *News18. (2015, June 14). Karnataka placed first in country for highest wind power capacity.*
7. *BW Businessworld. (2016, September 9). Karnataka Eyes Rs 3 Lakh Crore To Add 26 GW By 2018.*
8. *The Financial Express. (2018, September 5). Karnataka's big power bet: 66 GW capacity by 2030, Rs 3 lakh crore investment.*
9. *Central Electricity Authority. (2018). Resource Adequacy Plan: Transmission Plan for Renewable Energy Generation Plants in Karnataka.*
10. *IEA. (2018). Karnataka Solar Policy 2014–2018.*
11. *Karnataka Renewable Energy Development Ltd. (2017). Draft Renewable Energy Policy 2016–2018.*
12. *Business Standard. (2016, January 22). RPSG Group to invest ₹10.5K cr in Vijayapura, Ballari districts of K'taka.*
13. *Energetica India. (2016, January 28). RPSG Group Commits INR 10,500 Crore Investment in Renewables in Karnataka.*
14. *Mercom India. (2018, October 5). Sumitomo Corporation to Invest in Hero Group's 500 MW Renewables Project.*
15. *University of Oxford. (2018). Accountability of commitments towards social investments: Pavagada Solar Park.*
16. *Bangalore Mirror. (2018, January 26). Karnataka's wind power surge redefines India's renewable map.*
17. *Business Standard. (2018, January 22). RPSG Group to invest ₹10.5K cr in Vijayapura, Ballari districts of K'taka.*
18. *BW Businessworld. (2018, September 9). Karnataka Eyes Rs 3 Lakh Crore To Add 26 GW By 2018.*
19. *Central Electricity Authority. (2018). Resource Adequacy Plan: Transmission Plan for Renewable Energy Generation Plants in Karnataka.*
20. *Energetica India. (2018, January 28). RPSG Group Commits INR 10,500 Crore Investment in Renewables in Karnataka.*
21. *Government of Karnataka. (2010). Overview for 2010–2018: Power Sector. Karnataka Legislature.*
22. *IEA. (2018). Karnataka Solar Policy 2014–2015.*
23. *Karnataka Renewable Energy Development Ltd. (2017). Draft Renewable Energy Policy 2016–2018.*
24. *Mercom India. (2018, October 5). Sumitomo Corporation to Invest in Hero Group's 500 MW Renewables Project.*
25. *Ministry of New and Renewable Energy. (2018, December 2). Rajya Sabha Starred Question No. 17: Renewable Energy Capacity in Karnataka.*
26. *Ministry of New and Renewable Energy. (2018, September 8). Bharat Renewable Energy Summit 2018 Roadshow Reaches Bengaluru.*
27. *News18. (2018, June 14). Karnataka placed first in country for highest wind power capacity.*
28. *The Financial Express. (2018, September 5). Karnataka's big power bet: 66 GW capacity by 2018, Rs 3 lakh crore investment.*
29. *The Industry Outlook. (2018, June 15). Karnataka Adds 1331 MW Wind Power and Leads India's Clean Energy Race.*
30. *University of Oxford. (2018). Accountability of commitments towards social investments: Pavagada Solar Park.*