



MINISTRY OF ENERGY

FEED-IN-TARIFFS POLICY ON

RENEWABLE ENERGY RESOURCE GENERATED ELECTRICITY (SMALL- HYDRO, BIOMASS AND BIOGAS)

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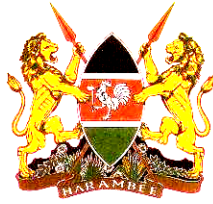
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**FEED-IN-TARIFFS POLICY FEED-IN-TARIFFS POLICY
ON
RENEWABLE ENERGY RESOURCE GENERATED ELECTRICITY (BIOMASS, SMALL-
HYDRO AND BIOGAS)**

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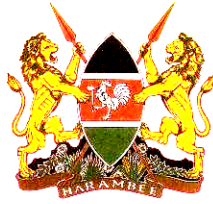
1. DEFINITIONS

In this Feed-in-Tariffs Policy, unless the context otherwise requires, the following capitalised words shall have the following meanings:

- i. **"Agreement" or "PPA"**: Power Purchase Agreement means the agreement between the Investor and the Off-taker together with any related agreement(s) and approved by the Energy and Petroleum Regulatory Authority (EPRA);
- ii. **"Commissioning"**: the conduct of tests necessary to put an interconnection facilities, Unit or the Plant (as the case may be) into operation and supply to the grid;
- iii. **"Commercial Operation Date"** – the date on which the plant is available for commercial operation after Commissioning.
- iv. **"Consumer Prices Index "** or "CPI": the index known as "The Consumer Prices Index for All Urban Consumers (CPI-U) for the US City Average for All Items 1982-84 = 100, as published by the United States Department of Labor, Bureau of Labor Statistics;
- v. **"EPRA"**: Refers to Energy and Petroleum Regulatory Authority as defined in the Energy Act No. 1 of 2019
- vi. **"FiT Policy"**: refers to the Feed in Tariff Policy.
- vii. **"Feed-in-Tariff power plant"**: refers to renewable energy power plants procured under this policy also referred to as "Plant"
- viii. **"Integrated National Energy Plan (INEP)"**: refers to the national energy plan in respect of coal, renewable energy and electricity developed by the Cabinet Secretary for the time being responsible for Energy pursuant to section 5 of the Energy Act 2019
- ix. **"IPP"**: Refers to Independent Power Producer
- x. **"kW"**: abbreviation for kilowatt where one (1) kW is equal to one thousand (1000) Watts
- xi. **"kWh"**: abbreviation for kilowatt hour where one (1) kWh is equal to one thousand (1000) Watt-hours;
- xii. **"Least Cost Power Development Plan (LCPDP)"**: The national power development plan as updated from time to time covering a specified time period or its successor.
- xiii. **"MoE"**: Refers to the Ministry of Energy
- xiv. **"MW"**: abbreviation for megawatt being one thousand (1,000) kW;



- xv. ***“Off-Taker”***: The Buyer of electrical energy for the purpose of selling the electricity to consumers connected to the national grid.
- xvi. ***“RE”***: Refers to Renewable Energy



2. INTRODUCTION

The Policy Framework

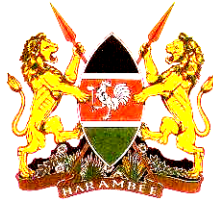
1. The Government of Kenya recognises that Renewable Energy (RE) which include wind, biomass, small hydros, geothermal, biogas, solar and municipal waste energy, have potential to generate income and employment, over and above contributing to the electricity supply and diversification of generation sources. The National Energy Policy 2018 (The Energy Policy) and operationalized by the Energy Act No. 1 of 2019 (The Act) provides for a feed in tariff system that promotes generation of electricity from Renewable Energy sources so as to enhance the country's electricity supply capacity.
2. The Energy Policy under section 3.4, 3.7 and 3.8 incorporates strategies to promote the contribution of the RE in generation of electricity and section 3.11.1 of the Energy Policy provides for the feed in tariff system.
3. Section 75 of the Energy Act 2019 provides for the development and use of renewable energy technologies, including but not limited to solar, biomass and wind and section 91 of the Act provides for the establishment of a renewable energy feed in tariff system
4. Section 7 of the Energy Policy provides for the Government to undertake pre-feasibility and feasibility studies and maintain data with a view to availing the same to developers of energy resources and infrastructure to create investor and consumer awareness on the economic potential offered by other renewable sources of energy.
5. In view of the time and resources required to undertake feasibility studies, MoE prepared a *Position Paper* in the Financial Year 2007/08 proposing to set Feed-in-Tariffs (FiT) for electricity generated from RE, specifically for wind, biomass and small hydro. This was to safeguard the investments made by the respective developers in data collection, undertaking feasibility studies and to boost the development of renewable energy generation.

The Feed-in-Tariff Instrument

6. The Feed-in-Tariffs (FiT) Policy is an instrument for promoting generation of electricity from renewable energy sources. FiT allows power producers to sell renewable energy generated electricity to an Off-taker at a pre-determined tariff for a given period of time.
7. The objectives of the FiT Policy are to:
 - a) Facilitate resource mobilization by providing investment security and market stability for investors in electricity generation from renewable energy sources;



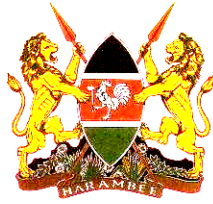
- b) Reduce transaction and administrative costs and delays associated with the conventional procurement processes;
 - c) Encourage private investors to operate their power plants prudently and efficiently.
 - d) Encourage local investors to participate in power generation.
8. The advantages of electricity from renewable energy sources include:
- a) Environmental integrity including reduction of greenhouse gas emissions (where feasible, project developers are encouraged to pursue carbon credit benefits);
 - b) Enhancing energy supply security, reducing the country's dependence on imported fuels, and coping with the global scarcity of fossil fuels and its attendant price volatility;
 - c) Enhancing economic competitiveness, job creation and other local economic benefits.
9. The first FiT Policy was published in March 2008 following approval by the Public Procurement Oversight Authority. The Policy covered wind, small hydro and biomass sources, for plants with capacities not exceeding 50MW, 10MW and 40MW respectively.
10. The first revision of the Policy was published in January 2010. It contained revised tariffs for wind and biomass, and introduced tariffs for geothermal, biogas and off-grid solar resources.
11. The Second revision of the policy published in December 2012 was supplemented by a comprehensive study entitled "Technical and Economic Study for Development of Small Scale Grid Renewable Energy in Kenya". The revised edition included tariffs for grid-tied solar, standardized PPA templates and reduced the lower threshold for biogas plants.
12. MoE in July 2016 completed a feasibility study for introduction of renewable energy auctions, to explore viability of implementing competitive bidding and propose the necessary instruments and frameworks required. This study was updated in January 2021.
13. In November 2016 the Cabinet Secretary for Energy appointed a Task Force on Review of the Independent Power Producers (IPP) Power Purchase agreements (PPA) upon directive of His Excellency the President. In April 2020, the Cabinet Secretary appointed an interagency committee to review and update the report by the Task Force.
14. The studies and the reports by the task force and the interagency committee proposed introduction of competitive bidding for medium to large scale renewable energy projects and review of FiT policy for small scale Biomass, Biogas and Small Hydro projects.



15. Further, stakeholder feedback from the PPA negotiation process has necessitated review of some of the FiT policy clauses for clarity and ease of interpretation of the policy as well as negotiation and implementation of the PPA.
16. In 2015, the PPP Committee acting on section 61 of the PPP Act 2013, approved the FiT Policy as a mechanism of procuring and developing renewable energy projects aligned to the PPP Act.
17. The FiT Policy provides for review every three years from the date of publication. The last review was undertaken in December 2012, hence the need for the current review.
18. This Policy applies to renewable energy power plants not exceeding 20MW in Biomass, Biogas and Small Hydro technologies. The thresholds are provided for in the Appendix.

3. POLICY STATEMENTS ON SPECIFIC ISSUES

19. Renewable energy power plants shall be contracted through a Standardised PPA applying the tariffs specified in the appendix to this policy.
20. The sites for development of renewable energy resources shall be approved on a first-come, first-served basis.
21. The FiT **Standardised PPA** established under this policy incorporates the following features:
 - a) the PPA term shall be a maximum of 20 years
 - b) the plants may not be despatchable;
 - c) the PPA is offered to projects that demonstrate technical and economic viability, meet the grid connection requirements and are able to secure all necessary legal and regulatory approvals and financing within the timeframe specified in the Application and Implementation Guidelines;
22. The following principles underlie the calculation of the FiT values:
 - a) the values are computed using cost plus reasonable return on investment;
 - b) the feed in tariffs are denominated in US dollars;
 - c) the feed in tariffs for small hydros are calculated for minimum and maximum capacity as set in this policy with linear interpolation being used to determine the applicable value based on the actual capacity of the power plant;
 - d) the feed in tariff shall be fixed over the term of the PPA except for the O&M component which will be subjected to indexation using the US CPI. The applicable base index is the prevailing index at the time of signing the PPA.
 - e) the feed in tariffs may be denominated in Kshs for willing developers. The feed in tariff shall be fixed over the term of the PPA except for the O&M component which will be subjected to indexation using the Kenyan CPI



23. The escalable portion of the tariff for each respective technology is provided in the Appendix.
24. The cumulative contracted capacity contribution by FiT projects of up to 20MW shall not exceed 10% of system-wide generation capacity. When the total contracted capacity of the embedded generators approaches the 10% limit, the Government will review the capacities based on the existing system technical capabilities and national requirements.

Large renewable energy projects (capacity exceeds 20MW)

25. All Solar and wind power projects, as well as other RE projects larger than 20MW will be procured under the Renewable Energy Auction Policy. Geothermal projects will be procured under the Policy on Licensing of Geothermal Greenfields.

4. DESIGN OF FEED-IN-TARIFFS

26. Electricity generation costs vary according to the RE technology used. Therefore, the FiT levels are technology specific and depend on:
 - a) The investment cost for the plant (including the costs of feasibility studies, site development, construction, and grid connection);
 - b) The operations and maintenance (O&M) Costs;
 - c) The fuel costs where applicable;
 - d) The financing costs (including interest during construction) and a fair return on the invested capital. The availability of concessionary finance will be taken into account when estimating such costs;
 - e) The estimated economic lifetime of the power plant;
 - f) The amount of electricity to be generated based on estimated capacity factor.
27. The FiTs values are based on the generation costs in Kenya benchmarked to FiT policies in other parts of the world and the specific socio-economic conditions in Kenya.
28. The Developers will be required to optimize on the available resource for the economy to benefit from the economies of scale.

Feed-in Tariff for Biomass Energy Resource Generated Electricity

29. In this policy, biomass refers to plant or animal based energy resource and includes agricultural waste, agricultural products, municipal waste, bio-fuels, forestry waste and fuel wood.



30. The FiT values for biomass energy projects are set out in the appendix. The FiT shall apply for upto 20 years from the commercial operation date of the biomass power plant.

Feed-in Tariff for Small Hydro Power Resource Generated Electricity

31. An assessment of small hydro resource potential carried out by the Ministry of Energy indicated that there are many suitable sites for small hydro power development in the country. However, developers will be required to carry out detailed feasibility studies to establish the financial and economic viability of specific sites for power generation.
32. The FiT values for small hydro energy projects are set out in the Appendix. The FiT shall apply for upto 20 years from the commercial operation date of the small hydro power plant.

Feed-in Tariff for Biogas Energy Resource Generated Electricity

33. In this Policy, biogas energy refers to renewable energy from gas-based energy resources such as agricultural waste and municipal waste.
34. The FiT values for biogas energy projects are set out in the Appendix. The FiT shall apply for upto 20 years from the commercial operation date of the biogas power plant.

5. CONNECTION OBLIGATIONS

35. The Feed-in-Tariffs values set in this policy are inclusive of grid interconnection costs. The costs of interconnection, including the costs of construction, upgrading of transmission/distribution lines, substations, associated equipment and way-leave acquisition are to be borne by the developer.
36. Upon prior arrangements, the Off-taker may construct or upgrade the grid at a reasonable economic expense to facilitate interconnection and meet all technical requirements. The aforementioned interconnection costs will be borne by the developer upfront.
37. Developers will be required to undertake grid connection study which shall take into consideration existing and other approved generation projects as well as planned infrastructural projects likely to impact on the grid in the same locality. The study shall require to be approved by the FiT Policy Committee.
38. The grid connection study should conform to the grid connection guidelines issued in this policy and should include steady state and dynamic/transient stability analysis.



39. The expected commissioning of the renewable energy power plant is to be aligned with the most current LCPDP/INEP, notwithstanding the approval given.

6. PURCHASE OBLIGATION

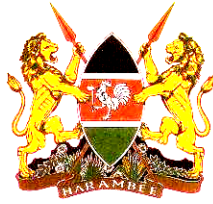
40. The Off-taker will facilitate grid interconnection for plants generating electricity from renewable energy sources.
41. The Off-taker will on a priority basis purchase all electricity supplied by small renewable energy projects as defined in this policy. Capacity payments shall not be applicable under this policy. Deemed Generated Energy payments shall be paid if the grid availability falls below the guaranteed levels as specified under standard PPA at a rate equivalent to 75% of the applicable tariff values provided under appendix.
42. The Off-taker shall recover from electricity consumers the feed-in tariff as it may be directed by EPRA at the time of approval of the PPA or review thereafter. All contracted capacity will be included in the offtake base tariff approved by EPRA in the preceding tariff review period. Recovery of cost from Feed-In tariffs power plants contracted prior to tariff review shall be done as pass-through cost such that the off-taker remains revenue neutral.
43. All projects approved for implementation under this policy shall not require any form of security or guarantee from Government including Government Letter of Support.

7. APPLICATION AND IMPLEMENTATION PROCEDURES

44. Renewable energy generators feeding into the grid will require a PPA. The project sponsor for such renewable generation projects must be an entity legally incorporated in Kenya. In the event the initially approved developer cedes some shareholding in order to incorporate equity partners, the developer shall retain at least 30% of the shareholding.
45. The procedures for applying for and implementing the FiT shall be in accordance with the Application and Implementation Guidelines, as published under this policy, the first step being the submission of an Expression of Interest (EOI) to the Ministry of Energy.

8. COMPLIANCE WITH TECHNICAL, LEGAL AND REGULATORY REQUIREMENTS

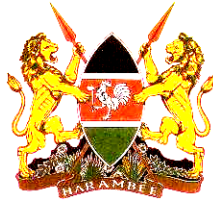
46. All projects implemented under the Feed-in-Tariff system shall comply with all the relevant technical, legal and regulatory requirements of the Republic of Kenya.



47. Projects will abide by the provision of the *Connection Guidelines for Small-Scale Renewable Generation Plant* as well as the *Kenya National Grid Code*.

9. REVIEW OF FEED-IN-TARIFFS POLICY

48. This Feed-in-Tariffs policy shall be subject to review every three years from the date of publication. However, a policy review may be undertaken earlier than three years in exceptional cases. Any changes made during such reviews shall only apply to renewable energy power plants developed after the revised policy is published. For the avoidance of doubt, FiT values applying to PPA contracts entered into previously will remain unchanged.
49. The tariff, capacities and other terms applicable to an approved Feed in Tariff project shall be those prevailing on the date when the PPA is signed.



APPENDIX – FiT VALUES

50. The FiT values for small renewable projects connected to the grid are provided in the tables below.

FiT values for small renewable projects below 10MW

	Installed Capacity (MW)	Standard FiT (US cents/kWh)	Percentage Escalable portion of the Tariff
Hydro*	0.5	9.00	8%
	10	8.20	
Biomass	0.5-10	9.50	15%
Biogas	0.2- 10	9.50	15%

*For values between 0.5-10MW, interpolation shall be applied to determine tariff rounded to two decimal points.

FiT values for small renewable projects above 10MW

	Installed Capacity (MW)	Standard FiT (US cents/kWh)	Percentage Escalable portion of the Tariff
Hydro	10 – 20	8.20	8%
Biomass	10.1 - 20	9.50	15%
Biogas	10.1 - 20	9.50	15%