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Biomass

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Biomass is any biological material from living, or recently living organisms that can be used as fuel. Biomass can be converted into energy by thermal conversion, chemical conversion or biochemical conversion to produce heat, electricity, or both heat and power.

Below are examples of sample policies, laws, regulations and agreements relating to biomass projects, along with other useful information and resources.

Policies, Laws and Regulations: Biomass

IEA/IRENA Global Renewable Energy Policies and Measures Database - The International Renewable Energy Agency (IRENA) maintains a joint database with the International Energy Agency (IEA) for policies and measures pertaining to renewable energy from around the world. The database is searchable by country and sector.

Sample Project Documents and Contracts: Biomass

Brazil

Government Clean Energy Program: Standard Biomass Power Purchase Agreement

Ethiopia

Reference: Draft Sample PPA of May, 2015 relating to a small bagasse power generation facility between Ethiopian Electric Power (EEP) as off-taker and power generation company ("Seller"). Seller will develop, build, own and operate a bagasse electric power generating facility, as a small power producer. EEP to purchase from the Seller the offered capacity and the electrical energy produced at the Facility in accordance with the terms and conditions set forth in the Agreement. 20 year contract. Pricing based on feed-in tariff.

France

Contracts related to biomass projects (***Contrats Biomasse***) - Standard contracts (approved by the Ministry of Energy Transformation and Solidarity - *Ministère de Transition écologique et solidaire*) published by EDF together with relevant législation.

Additional information on renewable energy projects (Énergies renouvelables et de recuperation) in France is available on the website of the Ministère de Transition ecologique et solidaire

Honduras

Contratos de Energia Producida con Biomasa - Various Biomass PPAs published by Empresa Nacional de Energía Electrica (ENEE).

India

Draft Power Purchase Agreement between ESCOM and another party which plans to develop, design, engineer, procure, finance, construct, procure, finance, construct, own, operate and maintain a biomass-based Electric Power Generating station

Malaysia

Standardized power purchase agreements for a renewable energy installation utilizing biomass as its renewable resource. Based on feed-in tariff system.

- **PPA (small)** - Renewable energy power purchase agreement for a renewable energy installation having a net export capacity of up to and including 10 MW.
- **PPA (medium-sized)** - Renewable energy power purchase agreement for a renewable energy installation having a net export capacity of above 10 MW and up to and including 30 MW.

Pakistan

Biomass-Bagasse Cogeneration Electricity Purchase Agreement - Standard PPA relating to a bagasse/biomass power generation facility (final draft of October 2013) between the National Transmission and Despatch Company ("Purchaser") and an independent power producer (IPP) ("Seller"). IPP will design, engineer, construct, insure, commission, operate and maintain a biomass/bagasse power generation facility. Seller wishes to sell and Purchaser wishes to purchase the net electrical energy produced by this facility, on and pursuant to the terms and conditions of the PPA.

Biomass-Bagasse Cogeneration Implementation Agreement - Standard Implementation Agreement (revised draft of December 2013) between Government of Pakistan and Seller relating to a Bagasse/Biomass power generation complex.

Sri Lanka

Standardized PPA for biomass (Information copy) – Standardized agreement for the purchase of electrical energy between the Ceylon Electricity Board and power producer relating to Dendro Power Project.

United States

New Hampshire – Biomass PPA - 20 year amended and restated PPA of May 18, 2011 with respect to a biomass-fueled electrical generation facility to be located in Berlin, New Hampshire.

Colorado - Forest Biomass Gasification Project: Small scale forest biomass electricity demonstration project using gasification technology. Request for Proposals (RfP) -The purpose of this RFP is to give a private company ("Company") the opportunity to test a small-scale demonstration project from which public utility can learn about the feasibility of a specific generation technology, namely a generating facility using forest biomass that includes a system of gasification to gas clean-up to electric generation. The public utility does not want to own or operate this demonstration project itself, but is proposing to purchase the full electrical output of the project pursuant to a power purchase agreement ("PPA"). The **PPA** will have a term of ten (10) years. It includes provisions that will require that the technology vendor selected will provide the Company access to all information regarding the project's operations and performance, including, but not limited to data concerning the facility and component availability, performance, quality and cost of fuel supply and fuel delivery, fuel processing, repair and maintenance of equipment, air and water emissions, and any byproducts or wastes arising from the facility.

Power Purchase and Sale Agreement between Southern California Edison Company (SCE) and Imperial Valley Biopower, LLC

Vietnam

Circular - Project Development, Avoided Cost Tariff and Standardized PPA for Biomass Power Projects of 9 December 2015. Standardized document developed by the Ministry of Industry and Trade of Vietnam and Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) through their MOIT/GIZ Energy Support Program.

Further Reading and Resources

Biomass resource assessment and mapping can be complicated due to the diverse types of biomass that can be used for power generation. The publication, Assessing and Mapping Renewable Energy Resources (2020) explain the importance of resource assessment and mapping, key steps and good practices, methodological issues, and potential sources for further advice and support.

India

Indian National Policy on Biofuels

United States

The Law of Biomass - A Guide to Business and Legal Issues, Stoel Rives LLC, May 2010

Related Content

- Climate-Smart PPPs
- Climate-Smart PPP Legal and Regulatory Framework
- Preparing, Procuring and Implementing Climate-Smart PPPs
- ?Sector-Specific Content on Climate-Smart
- Renewable Energy
- Power & Renewable Energy Toolkits
- Biomass
- Hydropower

- **Carbon Capture and Storage**

- **Geothermal Energy**

- **Wind Power Energy**

- **Climate-Smart PPPs: Further Reading and Resources**

Additional Resources

- Sub-national and Municipal PPPs
- Public-Private Partnerships for Transport
- Power and Renewable Energy PPPs
- Solar Power Energy
- Wind Power Energy
- Hydropower
- Geothermal Energy

Partner Resources



Renewable Energy Project Resource Centre (REPRC)

hosted by Energypedia

Wiki-based library of energy project resources. Includes sample terms of references, procurement documents, economic analyses and case studies (success factors and lessons learned).

Disclaimer: *The resources on this site is usually managed by third party websites. The World Bank does not take responsibility for the accuracy, completeness, or quality of the information provided, or for any broken links or moved resources. Any changes in the underlying website or link may result in changes to the analysis and recommendations set forth on the* Public-Private Partnership Resource Center. *The inclusion of documents on this website should not be construed as either a commitment to provide financing or an endorsement by the World Bank of the quality of the document or project. If you have any comments on any of the links provided on the* Public-Private Partnership Resource Center, *please get in touch here*