Bioenergy Policies

Bioenergy is one of the largest sources of renewable energy today, providing heat, electricity and transportation fuels. Energy shortages during the Second World War were the first driver to significantly prompt interest in biofuels. The oil price shocks in the 1970s, caused by limited supply from some oil producing countries, renewed interest in developing energy independence through alternative fuels. More recently, national and international climate targets led to policies that support increased use of bioenergy by industry and households. Policy instruments most commonly used by governments are listed in the following table.

Overview of regulatory and economic instruments that support bioenergy

Instrument	Description	Examples
Renewable energy law	A law sets a target for the share of energy to be supplied from renewable sources. Such a law is often embedded in technology roadmaps or national action plans for renewable energy.	Renewable Energy Target (Austria) Renewable Energy Directive (European Union)
Quota or mandate	Renewable fuel mandates or renewable portfolio standards set a minimum level for renewable content in liquid fuels (e.g. gasoline, diesel) or for electricity sold.	*Renewable Fuels Regulations* (Canada) Renewable Fuel Standard (RFS2) (United States) Brazil ethanol blending mandate
Feed-in tariff (FIT)	FIT agreements guarantee electricity suppliers a price per unit of generation over a specified timeline, promoting stable production of renewable energy.	Germany Feed-in Tariff Ontario Feed-in Tariff Program Vietnam Feed-in-Tariff
Feed-in premium (FIP)	FIPs complement revenues generated on the standard market via a premium for the electricity generated or capacity installed.	Italy Feed-In Premium Greece Feed-In Premium Contracts for Difference (United Kingdom)
Capital grants and subsidies	While grants reduce upfront capital costs and help stimulate research, development and demonstration (RD&D), subsidies provide operational income certainty.	ecoENERGY for Biofuels Program (Canada) Renewable Subsidy Policy of Nepal ARPA-E PETRO program (United States)
Soft loan and loan guarantee	Loan programs with low interest rates are made available to eligible projects to open access to financing and reduce net costs of capital for developers.	Support for Biomass Supply Chain (Italy) Brazil Inova Energia Program (Brazil)
Tax incentive or credit	Tax mechanisms reduce the net cost of projects by deferring taxes on eligible equipment, thus allowing investment of the savings into other expenditures.	Gujarat Waste to Energy Policy 2016 (India) *American Recovery and Reinvestment Act* of 2009 (United States)
Carbon pricing	These schemes incorporate the cost of negative externalities caused by fossil GHG emissions via a tax or an emissions trading system (ETS).	Sweden Carbon Tax EU Emissions Trading System Federal Carbon Pricing Backstop (Canada)
Auction scheme or tender	Auctions or tenders are held by a government or public entity to contract a certain amount or capacity of renewable energy. Tenders are best suited to larger-scale projects that involve high up-front costs and need guarantees.	Argentina Renewable Energy Auctions - RenovAr Program
Certification scheme	These schemes provide market certainty about the sustainability of bioenergy and mitigate the risk of adverse impacts. They can be established by government or the private sector.	Roundtable on Sustainable Palm Oil (RSPO-RED) (European Union) International Sustainability and Carbon Certification (ISCC EU) (European Union)

Adapted from *How 2 Guide for Bioenergy: Roadmap Development and Implementation*, International Energy Agency (IEA) and Food and Agriculture Organization of the United Nations (FAO)

Canada

Adoption of bioenergy policies around the world

The number of policies that support the production and use of bioenergy has been increasing since the late 1990s. The United States, Brazil and the European Union are currently the largest producers of liquid biofuels and drive consumption via policies such as blending mandates. However, biomass is also used to meet a significant share of energy demand in countries such as Finland, Austria and Sweden, mostly for heat for industry and buildings. A snapshot of the numerous policies around the world is provided below. Several of these policy instruments are in place or under development in Canada at the federal or provincial and territorial levels.

Contract for Difference, Feed-in premium (2014, United Kingdom)

An electricity generator is paid the difference between the "strike price," which varies depending on the technology used, and the market price for electricity. This is done through a contract with the Low Carbon Contracts Company (a government-owned company).

International Sustainability and Carbon Certification, Certification scheme (2010, European Union)

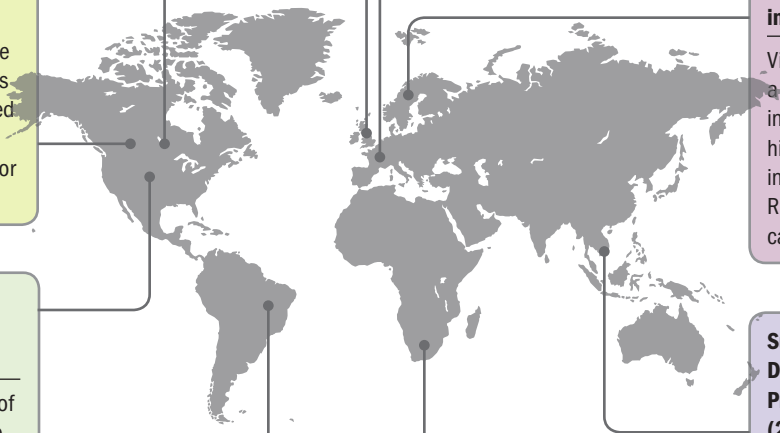
Biofuel suppliers must demonstrate compliance with sustainability criteria set under the EU Renewable Energy Directive (RED). ISCC was the first scheme recognized under the German Sustainability Ordinances in 2010 and one of the first schemes recognized under the RED in 2011.

Federal Carbon Pricing Backstop (2018, Canada)

Central component of the Pan-Canadian Framework on Clean Growth and Climate Change. A carbon levy on fossil fuels will start at \$10/t CO_2e in 2018, reaching \$50/t CO_2e in 2022.

ecoENERGY for Biofuels Program, Subsidy (2007–2017, Canada)

Provides operating incentives to producers of alternatives to gasoline or diesel based on production levels and market conditions. Rates started in 2008 on a declining basis at \$0.10/L for ethanol and \$0.26/L for renewable diesel.



A Vehicle Fleet Independent of Fossil Fuel by 2030, Various instruments (2009, Sweden)

Vision to be fulfilled through a combination of instruments, including tax incentives for high-ratio blends of renewables in gasoline and diesel, support to RD&D on advanced biofuels, and carbon pricing.

Renewable Fuel Standard (RFS), Blending Mandate (2005, United States)

The RFS requires a certain volume of renewable fuel to replace or reduce the quantity of petroleum-based fuel for different biofuel categories. The 2022 volume requirement for renewable fuel is 36 billion gallons.

Support Mechanisms for the Development of Biomass Power Project, Feed-in Tariff (2014, Vietnam)

Sets a FIT of 1,220VND/kWh (\$0.067/kWh) to support the development of combined heat and power plants that use biomass.

Ethanol Blending Mandate (1993, Brazil)

The Brazilian government mandates a minimal ethanol content for gasoline, which reached 27% in 2015, and aims to implement a blending mandate of 10% for diesel by 2019.

Biofuels Industrial Strategy, Various instruments (2007, South Africa)

Mandates for renewable content in gasoline (2%) and diesel (5%) were implemented in 2015 to complement tax incentives put in place in 2007 for biofuel producers.

Cat. No. M134-46/2017E-PDF (Online)
ISBN 978-0-660-24023-7

Aussi disponible en français sous le titre : Politiques en matière de bioénergie