



Feeding the grid RENEWABLY

FACT SHEET



MAKING RENEWABLE ENERGY A PRIORITY

How Feed-In Tariffs Maximize the Benefits of Renewable Energy

Renewable energy holds the promise of reducing pollution, creating jobs and diversifying the market while providing a long-term, secure, local energy supply to fuel the economy.

Governments that are serious about encouraging renewable energy development increasingly understand that feed-in tariffs are the most effective policy instrument at their disposal.

A feed-in tariff is simply a guaranteed price set by the government for anyone who wants to sell renewable electricity to the grid, and a guarantee that they will have access to the grid to do so.

The price, or tariff, is set so that a modest profit is ensured, thereby unleashing the collective capital resources of the entire province, state or country to be part of the transition to renewable energy. The additional cost of purchasing the renewable power is shared among all consumers.

Germany is considered to be the country most successful at rapidly transitioning toward renewable energy systems through feed-in tariffs.

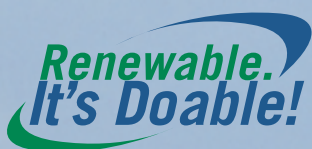
Using feed-in tariffs, Germany currently generates 12.5% of its electricity from renewable sources, while employing more than 215,000 people in the renewable energy sector, according to the German Federal Ministry of Economics and Technology.¹

Feed-in tariffs exist in more than 20 other countries as well. They are the most common policy for encouraging renewable energy systems, in part because “feed-in mechanisms achieve larger deployment at lower costs” than other policy mechanisms such as quotas, direct incentives or voluntary goals.²

Feed-in tariffs have consistently demonstrated that they are, to date, the most effective mechanism to stimulate a rapid, sustained and diverse deployment of renewable energy.



▲ Farmers such as this one in Waterloo, Ontario were quick to take advantage of the first Feed-in tariffs-style law in North America. PHOTO: TIM WEIS



¹ www.german-renewableenergy.com

² *Stern Review on the economics of climate change*, www.hm-treasury.gov.uk

Essential components for successful feed-in tariffs:

1 The right to connect easily to the grid for anyone who wants to produce renewable power.

2 A premium price (tariff) is paid to producers to ensure a modest return on investment that is tailored to each renewable technology and the location where it is installed.

3 Long-term contracts to create stability in the market. They send a strong signal to manufacturers and installers to make long-term investments, which drive costs down.

4 A regular review of the program to ensure that tariffs are set appropriately and that they are lowered regularly as costs decrease.

5 No cap, or limit, on the amount of renewable power that can be developed.

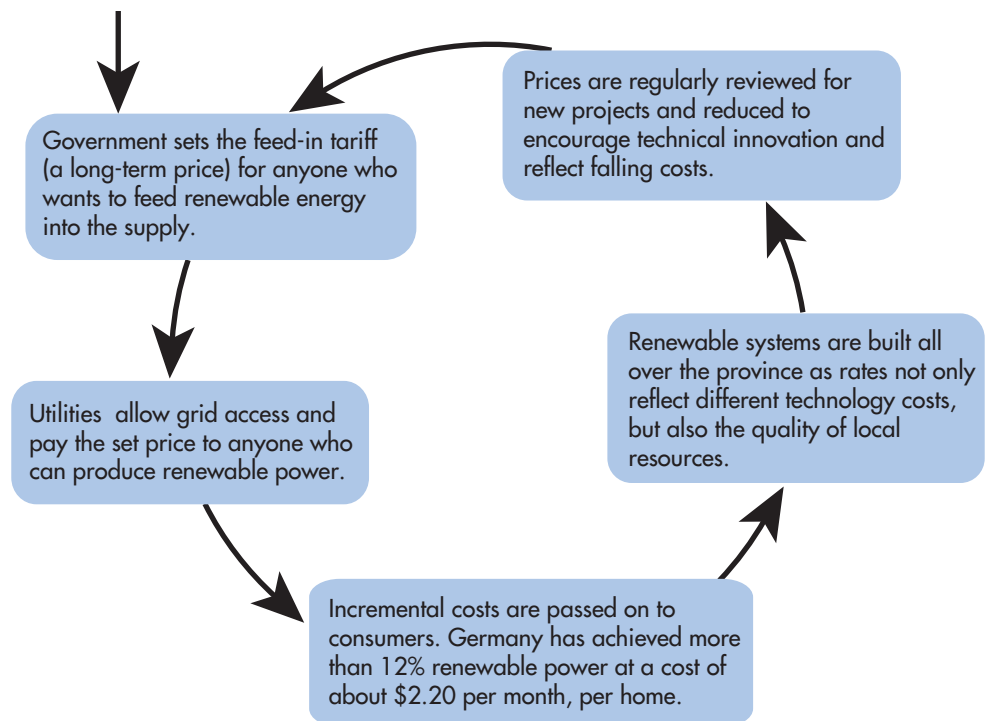


▲ Feed-in tariffs allow every home, farm and business to become providers of clean energy such as solar power.

PHOTO: GORDON HOWELL

How do Feed-in tariffs work?

THE PEOPLE DECIDE THEY WANT TO MAKE RENEWABLES A PRIORITY



Why do feed-in tariffs work?

While implementing renewable energy at the lowest cost, Feed-in tariffs also tend to result in local job creation and industry development. A number of factors contribute to their far-reaching success:

- Feed-in tariffs reward actual production, unlike capital subsidies which encourage installation but not necessarily operation.
- No bidding minimizes development investment risks.
- Long-term contracts facilitate access to financing.
- Feed-in tariffs encourage small, medium as well as large-scale producers.
- Feed-in tariffs encourage community and local ownership and engagement, minimizing opposition to projects.
- Tariff rates encourage renewable power producers to use the most efficient technology, driving down costs by fostering industrial competition.
- Although overall electricity prices rise slightly in the short-term, in the longer term they stabilize as prices become increasingly independent of conventional fuel costs.
- For anyone who generates power under a Feed-in tariff program, the income more than offsets any electricity price increases.



▲ Feed-in tariffs need to be tailored to support various renewables such as solar, farm biogas and wind, shown above.

PHOTOS: ROGER PETERS, DAVID DODGE, TIM WEIS

Feed-in tariffs can vary from jurisdiction to jurisdiction in order to meet local objectives and accommodate constraints.

More than 20 countries in the world currently use a feed-in tariff model. The province of Ontario has the closest thing to a feed-in tariff program in North America, and many states are currently at different stages of considering feed-in tariff legislation.

An important aspect of a feed-in tariff is that it does not depend on annual government budgeting cycles to be renewed. As a result, industry can mature rapidly by making long-term investments in research, development and manufacturing capacity.

The three leading exporters of wind turbines are Germany, Denmark and Spain – all of which have implemented feed-in tariffs. Conversely, while the United States has the third most installed wind turbines on the planet, it has virtually no manufacturing capacity. The domestic wind energy market in the U.S. has gone through repeated booms and busts because short-term legislation mechanisms have not created the market stability needed for industrial development.

▶ *Despite possessing marginal wind and solar resources, Germany has used feed-in tariffs to become the world's renewable energy superpower.*

With less than 5% of the land mass of Canada at its disposal, Germany has more than twelve times as much wind power installed.

Per capita, Germany has five times more installed wind power.

Canada-Germany | Land Area



Land Area (km²)

Canada: 9,984,000
Germany: 357,000
Canada ~28 times larger than Germany

| Wind Capacity



Wind Capacity (MW in 2007)

Canada: 1,850
Germany: 22,250
Germany ~12.5 times more than Canada

Why do we need feed-in tariffs now?

It was not long ago that the oil sands were not profitable, and billions of dollars of government research money were spent on developing technology to bring down the costs.

Our governments need to demonstrate a similar commitment to the development of renewable energy.

Feed-in tariffs do not involve government spending, but only the political will to implement them.



There is no doubt that renewable sources will play a major role in providing secure and clean energy in the future. The question is how quickly will Canada adopt these emerging technologies and to what degree will we lead or lag behind the rest of the world.

There are many reasons why we must choose to join the global leaders in pursuing renewable energy:

- Combat climate change.
- Create local jobs, industry and innovations.
- Diversify the energy supply.
- Foster local technical skills.
- Reduce the costs of renewable energy sources.
- Minimize grid losses by encouraging local power generation.

- Replace aging power plants with clean alternatives.
- Give communities the power to be part of the solution.

Feed-in tariffs have been shown time and again to be the most efficient and cost-effective way to foster renewable energy.

Governments who are serious about pursuing renewable energy need to seriously consider feed-in tariffs. With the era of clean energy upon us, it is time to start feeding the grid renewable power.

A feed-in tariff is a long-term price (*tariff*) that is set by the government for anyone who wants to feed renewable energy into the supply.

Utilities are required to allow grid access and pay the set price to anyone who can produce renewable power.

Renewable systems are built all over the province because rates reflect not only different technology costs, but also the different quality of local resources.

Prices are regularly reviewed for new projects and reduced to encourage technical innovation and reflect falling costs.

Incremental costs are shared among all consumers.

Germany has achieved more than 12% renewable power at an extra cost of about \$2.20 per month, per home.



- ▲ Solar panel efficiency increases in lower temperatures. As a result, Canadian cities have better solar resources than Germany – the current world leader in installing solar systems. PHOTO: TIM WEIS

The Pembina Institute is a member of the Canadian Renewable Energy Alliance (CanREA), an alliance of Canadian civil society organizations from the non-profit or voluntary sector that hold a common interest in promoting a global transition to energy conservation and efficiency and use of low-impact renewable energy.

www.canrea.ca



More information?

For more information about feed-in tariffs and the success of jurisdictions that have implemented them see:

www.feed-in-cooperation.org

www.wind-works.org

www.onlinepact.org

This fact sheet is the first in the series **Making Renewable Energy a Priority**. It is accompanied by a more detailed primer which can be downloaded at www.re.pembina.org.