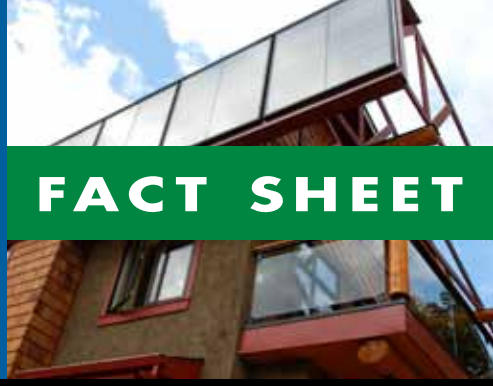
Renewable Energy FIT for CITIES



FACT SHEET

MAKING RENEWABLE ENERGY A PRIORITY

Cities leading global renewable energy boom

In Canada, most electricity is consumed in cities and towns, but it is usually generated far away. This is partly because traditional methods of generating energy include dirty coal, big hydro and nuclear power, which most people wouldn't want in their backyards.

Increasingly, municipalities are taking steps to clean up their electricity supply, create local jobs and get their own citizens involved in reducing emissions and creating the electricity supply of the future.

Generating electricity locally means less electricity has to be transmitted from rural areas — so urban citizens can directly reduce the environmental impact of the energy they consume.

Municipal action on clean energy comes in a number of different ways. In 2003, the borough of Merton in London, England, required all new buildings to produce at least 10 per cent of their total energy from renewable energy sources integrated into the building itself. In 2000, Barcelona, Spain introduced a requirement that solar water heaters be installed on all new and retrofitted buildings. In 1993, Aachen, Germany implemented a feed-in tariff that enabled its citizens to connect solar panels to the municipal grid and be paid a fair rate that would return a modest profit for program participants.

How do feed-in tariffs work?

Feed-in tariffs comprise a system of payments for each unit of electricity generated from a renewable source such as wind or solar. The price that is paid is based on the cost of the electricity produced, plus a reasonable profit for the producer. This is much like the way electricity from conventional power plants has been regulated in North America for many decades.

— Paul Gipe, renewable energy expert

Photo: Gordon Howell

▲ *One of the best ways for cities to get involved in renewable energy is through solar power, and Alberta has a superior solar resource. A small pilot program in Edmonton in 2010 was fully subscribed just days after it was announced.*

Shortly after the implementation of a FIT in Ontario in 2009, TD Bank Financial Group started offering special financing exclusive to renewable energy projects that had secured feed-in tariff contracts.

Municipal action leads to national programs

In all three cases, the clean energy action taken by these leading municipalities was replicated across their entire country.

The 'Merton rule' has now been copied by many other local authorities throughout the U.K. The 'Barcelona model' has also been adopted in other countries. In 2006, the Spanish government approved a new Technical Buildings Code, which includes an obligation to cover 30 to 70 per cent of the domestic hot water demand with solar thermal energy.

In the case of Aachen, its policy became the basis for Germany's Renewable Energy Sources Act, and has since spread across the world.

Feed-in tariffs are now widely regarded as the most successful policy in facilitating low-impact renewable energy. It is estimated that 85 per cent of the world's solar photovoltaic (PV) systems have been installed as a result of various feed-in tariff policies.

Feed-in tariffs (FITs) have not only been successful at encouraging the adoption of renewable energy systems, but also at at mobilizing individuals, co-operatives and private companies to become part of a clean energy shift.

The name "feed-in tariff" is a literal translation from Germany's Stromeinspeisungsgesetz, the law on feeding electricity into the grid. The policy simply guarantees a price (a "tariff") for renewable energy

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Renewable energy pop quiz

Question: *What policy mechanism is responsible for most of the low-impact renewable energy development in the world?*

Answer: Feed-in tariffs *have helped spawn double-digit growth rates in renewable energy world-wide. Globally, FIT policies have helped create:*

- *50 per cent of wind energy capactiy*
- *85 per cent of solar PV capacity*
- *90+ per cent of on-farm biogas capacity*

Photo: David Dodge, The Pembina Institute

A small idea that became a multi-billion dollar industry in Germany

When the city of Aachen in Germany got an idea to support renewable energy in 1993, they couldn't have known the idea would become the most important policy in the world for increasing the supply of clean renewable energy.

Aachen City Council developed the world's first feed-in tariff in 1993 to allow investors to recover the cost of installing solar PV systems in the German city plus make a modest profit. This concept is very similar to the regulated rates for utilities that have been in place for decades, but it was simply applied to individuals.

The city-wide program introduced a solar price of 2 DM/kWh ($1.28 US/kWh) and guaranteed it for 10 years.

The idea seemed to catch on as more than 30 Bavarian villages followed suit between 1994 and 1997. Between 1995 and 2000 more than $7.5 million US worth of solar projects were built in Aachen. During that same period, the production costs for solar declined by 20 per cent and so did the feed-in tariff rates.

The Aachen model became the foundation for Germany's successful Renewable Energy Sources Act that includes a system of feed-in tariffs that were calculated based on real production costs and guaranteed for up to 20 years for solar PV.

Users pay, not taxpayers

Unlike subsidies and rebates — common ways for municipalities to promote renewable energy — the costs of FITs are borne by utility ratepayers, rather than taxpayers.

Photo: Tobias Helfrich

▲ *City hall at Aachen, Germany is the birthplace of feed-in tariffs — an idea that has helped create half of the renewable energy projects in the world.*

As of 2010, Germany gets 15 per cent of its electricity from renewable energy sources and has created more than 300,000 jobs in renewable energy.

Renewable energy future bright in City of Angels

In 2008, Los Angeles announced plans to launch a feed-in tariff to develop 150 MW of solar photovoltaics by 2016. The program is designed to encourage developers to build solar systems within the city and sell the power to the Los Angeles Department of Water and Power in long-term contracts.

Suppliers would be paid an established price set by the markets plus a "green" premium paid for the renewable value of solar energy.

This is all part of a very aggressive program to secure 33 per cent of the Los Angeles Department of Water and Power's electricity through a Renewables Portfolio Standard by 2020. As a consequence, Los Angeles hopes to reduce GHGs by 12 to 13 million metric tons of carbon dioxide equivalent per year by 2020.

Los Angeles also set a goal to create a 1.3 GW network of residential, commercial and municipally-owned solar energy systems by the year 2020.

Jobs, jobs, jobs

A FIT provides durable and predictable market conditions, essential to attracting infrastructure investment and developing local manufacturing capacity. The economic benefit of any clean energy project is directly related to the degree to which materials, components and labour can be locally sourced.

The cost of dirty energy

A study for the Ontario Ministry of Energy estimated the costs associated with the health and environmental damages of coal-fired generation to be 12.7 cents per kWh, about the same cost as producing wind energy.[1]

[1] *DSS Management Consultants Inc. and RWDI Air Inc., Cost Benefit Analysis: Replacing Ontario's Coal-Fired Electricity Generation. (OME, 2005)*

Photo: Los Angeles Department of Water and Power

▲ *Los Angeles is using feed-in tariffs and renewable energy portfolios to maximize its supply of renewable energy.*

▲ *A panorama of the Solar Sun Center in Gainesville, Florida.* Photo: Gainesville Regional Utilities

Solar panels popping up like flowers in Gainesville, Florida

In Gainesville, Florida, one of the most progressive municipalities in the U.S., solar PV panels are becoming a common sight.

The small city of 100,000 people worked with Gainesville Regional Utilities (GRU) who agreed to buy all of the electricity at a guaranteed rate for 20 years. When the program was launched in 2009, it was capped at 4 MW per year and in a short time it was oversubscribed. By June 2010, the second 4 MW of capacity was oversubscribed by a keen populace in Gainesville.

"People are putting their pension funds into solar panels, holding companies are investing in renewable energy," said Ed Regan, assistant general manager for GRU.

After one year, feed-in tariff rates were reduced to reflect the declining cost of solar technology. The *Solar Home and Business Journal* says the 2010 rates "yield an after-tax investment return of 4 to 5 per cent annually — much better than most people can get from a savings account."

Gainesville has already installed 2 MW of solar PV panels — more than six times the amount of solar installed in the previous decade — and expects to have at least 32 MW of solar PV power by 2016.

Photo: Allen Cheuvront

▲ *A solar photovoltaic system on Gleim Publications in Gainsville, Florida, part of an innovative city-led initative. Inset: a Google map of solar systems installed in Gainesville, Florida.*

FITs in the U.S.A.

Feed-in tariffs of varying ambition have already been established in San Antonio, Tex., and Sacramento, Calif. Other cities, including Palm Desert, Calif., Santa Monica, Calif., Traverse City, Mich. and Boulder, Colo., are exploring FITs locally.

Clean energy at the best price

Which is better: set a price and let the market decide how much energy is produced, or set a target for renewable energy and let the market determine the price?

The International Energy Agency studied 35 countries that had renewable energy policies in place. In 2005, countries that set a price using feed-in tariffs generated wind energy for 9 to 11 cents per kWh, while countries that set minimum quotas (such as renewable portfolio standards) produced wind energy at 13 to 17 cents per kWh.[2]

[2] *International Energy Agency, Deploying Renewable: Principles for Effective Policies (Paris, France: IEA, 2008) http://www.iea.org/textbase/nppdf/free/2008/DeployingRenewables2008.pdf*

Photo: Roberta Franchuk, The Pembina Institute

▲ *A net-zero house in Edmonton, Alberta features solar photovoltaic panels to generate electricity and solar thermal panels to generate hot water and heat. The home produces as much energy as it consumes.*

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Cities leading global renewable energy boom

that is fed into the grid. The key to success of the policy is that the tariffs are set in such a way that those who build a renewable energy system are able to make a reasonable profit on their investment if they maintain and operate it properly, and that renewable systems are given priority access to the electricity grid.

Numerous studies, including the Stern Review on the economics of climate change by former World Bank vice-president Sir Nicholas Stern, have found that FITs deliver renewable energy not only fastest, but also typically at the lowest cost, in part because they remove much of the element of risk in developing renewable energy projects. Market stability helps to reduce financing costs and facilitates private investment in local industry.

While the price paid inside a contract is fixed, the price for new contacts declines over time as innovation spurs a decrease in system costs. Solar PV prices have declined rapidly in the past 10 years, thanks to FITs.

FITs are now commonplace in Europe, typically at the national level. In Canada, Ontario has implemented a broad-based FIT, while Nova Scotia recently announced a community-based feed-in tariff, which is open only to co-operatively or community owned renewable energy projects in the province. In the absence of provincial laws, municipal governments have the opportunity to spur renewable energy development within their region by implementing municipal feed-in policies.

A number of cities have implemented FITs of varying degrees.

How is the feed-in tariff price set?

Utilities or government authorities review the cost of installing each type of renewable energy technology and estimate the amount of electricity that can be generated. A fixed price is then set for each technology included in the program: a price that, over time, will earn the investor enough to pay back the cost of the system and earn a profit. As costs for renewable energy technology decline, program administrators must review the price set for the FIT.

Nova Scotia FIT for renewable energy

"The community-based FIT will increase geographical distribution of renewable electricity sources, thereby contributing to our energy diversity and security. It should also promote greater public understanding and acceptance of renewable resources. And it will provide rural economic activity associated with the construction and operation of renewable energy projects — helping create good jobs and grow the economy."

— Nova Scotia's Renewable Electricity Plan, April 2010

Want more information?

The Pembina Institute's fact sheet on feed-in tariffs:
http://www.pembina.org/pub/1598

The Alliance for Renewable Energy, best resource on feed-in tariffs in North America:
http://www.allianceforrenewableenergy.org

The World Future Council, major clearinghouse of information on clean energy:
http://www.worldfuturecouncil.org

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