Fort Collins Area Chamber of Commerce

Briefing Paper on Feed-in Tariffs
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One concept for spurring development of renewable energy technology is called 'feed-in tariffs' or FiTs. The idea is getting some attention in Fort Collins due to a presentation at Innovation After Hours on January 27, 2010. Subsequently, the City Utilities Department gave a brief presentation to the Council about the concept and generally downplayed the viability of the idea. Undeterred, some renewable energy activists are pressing for a more thorough consideration by the City Council. Council Member David Roy called for the same at the March 2 Council meeting. One of the biggest advocates for FiTs is the German-based photovoltaic company Wirsol. Their USA subsidiary company, Wirsol Colorado, is located in Fort Collins, and their rep, GJ Pierman is advocating for feed-in tariffs. Wirsol Colorado sponsored a FiT conference in Aspen on March 15 and their representative was the one of the primary speakers at the January 27 session in Fort Collins.

The purpose of this paper is to provide background information about FiTs in anticipation that the issue will move forward with possible formal consideration by the City Council. It is not a position paper. Rather, it is a brief introduction to the subject of feed-in tariffs and lists some of the issues for the Chamber to consider.

An Introduction to Feed-in Tariffs

Feed-in tariffs are price supports for renewable energy production. The price supports are imposed on power utilities, which are required to pay elevated prices for electricity generated using renewable energy technology. Long-term, guaranteed payments are made to producers for every kilowatt hour of electricity they generate. Basically, end-users of electricity (i.e. all Fort Collins electric utility customers) pay elevated electricity rates to support the development of renewable energy by paying a high fixed rate to producers of renewable energy that feed power onto the power grid.

The odd name is European in origin. Specifically, it is the direct translation of the German name of their law that covers feeding electricity into the power grid from renewable energy sources. In North America 'tariffs' is an off-putting word, so some FiT advocates are beginning to use other names including renewable

energy payments, feed-in rates, performance-based incentives, clean energy buy back and renewable energy producer payments.

The in-vogue term and concept is "advanced renewable tariffs," which are a comprehensive system of feed-in tariffs that are differentiated by technology, project size, application, and in the case of wind energy, by resource intensity.

Feed-in tariffs are designed as an incentive to people to become renewable energy producers so they can sell electricity to the power grid for a lucrative financial gain. And, it is important to understand that 'energy producers' means anyone qualified and able to generate renewable energy and access the power grid.

FiT legislation typically has three general components: 1) guaranteed access to the power grid, even for non-customers of the power utility; 2) long-term contracts (typically 15-25 years) between the power utility and the renewable energy producers putting power onto the grid; and 3) high purchase prices for the renewable energy to cover the higher costs related to renewable energy production.

It's important to understand that FiT legislation obligates/requires/demands that the involved electric utilities buy renewable energy at the high prices set by the government.

Feed-in tariff legislation has been adopted in Germany, Greece, Italy, Turkey, South Korea and Spain, among other countries. In Germany, FiTs are credited with propelling the solar manufacturing sector and use of solar by Germans though it announced in early 2010 that it was cutting its tariffs.[1]

FiTs are sparsely used in North America. Two places that have adopted German-style FiTs are Ontario, Canada and Gainesville, Florida.[2] The reason usually cited for the tepid response in the U.S. is that feed-in tariff systems don't work well where power generation is primarily based on low-cost traditional fuels (coal, oil, natural gas). Additionally, America has a more market-oriented philosophy compared to the social-oriented, command-and-control governments of Europe.

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[1] "Germany slashes solar tariff, spurs debate about industry impact." January 22nd, 2010 -- German environmental minister said rates paid for energy from rooftop solar systems will fall 15% on April 1, while open space system payments will drop by the same amount, effective July 1.

[2] Representatives from Gainesville discussed their program at an "Innovation After Hours" in Fort Collins on January 27, 2010.

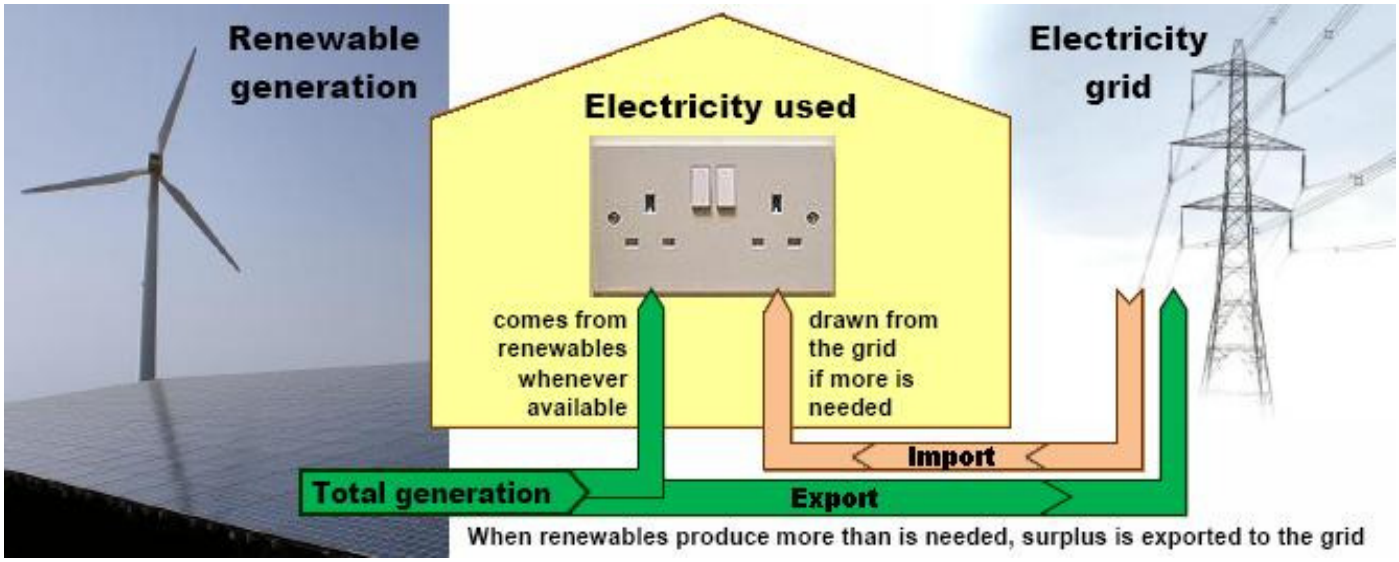
One renewable energy policy that has been more acceptable in the U.S. is renewable portfolio standards (RPS). Although they are politically-driven standards set by government, RPSs have been more acceptable because they set a goal and let the market figure out how best to achieve it. In contrast, FiTs put the government in the role of setting prices and picking the renewable energy technologies.

An orchestrated effort is underway in the U.S. called the 'Feed-in Tariff North American Campaign' to have FiTs adopted. The primary advocate is Paul Gipe. Feed-in tariffs are even addressed in the now stalled "Waxman-Markey" bill also known as 'cap and trade.'

Feed-in tariffs work this way:

- Residents, usually through their elected representatives, decide that they want to support the development and use of renewable energy appropriate for their locale and indicate that they are willing to pay an elevated price for electricity for doing so. A government – it could be local, state or national – then adopts feed-in tariff legislation designed to achieve that end. In some places this could be done administratively, but usually FiTs would be adopted through a legislative process.
- The feed-in tariff, or FiT, legislation establishes a fixed kilowatt hour rate paid to producers of renewable energy. Renewable energy producers (which could be farmers, cooperatives, residents and businesses) are paid a premium price for the electricity they generate.
- The price is fixed through a ***political*** process, not the market. Presumably, in the case of Fort Collins, that would involve internal staff studies combined with external consultant input, review by politically appointed bodies like the Natural Resources Advisory Board and the Electric Board, City Council work sessions and public testimony at a City Council meeting then a formal vote by the City Council on an ordinance establishing FiTs.
- The legislation guarantees higher profits to renewable energy producers than conventional power producers receive and sets different rates for different types of renewable energy based on the costs of those technologies. For instance, if energy from fossil fuel generation were typically billed to customers at 0.07 cents/kilowatt hour, energy from solar might get 0.14 cents.
- Additionally, the renewable energy producers are given long-term contracts with a guaranteed high price for their power to ensure a rich payback. In other words, artificially high rates over a long-term are designed to incent people to install renewable energy technology to produce energy to sell to the grid.

- The promise of a handsome ratepayer provided economic return for producing renewable energy and selling to the power grid spurs business for companies that manufacture and/or install renewable energy technology.



Source: http://www.fitariffs.co.uk/FeedInTariffs.html

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Who pays for the higher cost of this electricity?

- The end users (consumers) of electricity pay for the extra cost of FiTs through charges on their electric utility bills.
- There are two general ways of passing on these costs, which FiT proponents call 'premiums': mandatory or voluntary. The 'premiums' (i.e. the legislatively required higher rates necessary to cover the higher cost of renewable energy) can be socialized by mandatorily spreading them across all electric utility customers in the form of higher rates. Or, residents can voluntarily pay for this 'green energy.' An example of the latter approach is the City of Fort Collins wind power program.
- The government-set FiTs are often indexed to inflation.
- Proponents say that FiTs are not tax credits because the government is not involved in using the tax code to punish or incent behavior.
- Proponents also claim that feed-in tariffs are not taxpayer subsidies because they do not subsidize the cost of the equipment such as solar panels or wind turbines that are used to produce renewably generated electricity. They like to characterize FiTs merely as s simple payment for the generation of electricity. That's somewhat disingenuous word parsing because in the end, ratepayers pay a higher price for electricity to support (some would say subsidize) the installation of renewable energy. Instead of the market setting a price for

power based on all of the available technologies and fuel sources, a political process is used to promote some energy sources over others. Rather than the market setting the price for the power, government establishes high price supports.
- The price of FiTs goes up in time. Initially, consumers pay a modest amount as renewable producers come online. One advocate says that in Germany in 2007 the average household paid less than $50 per year for FiTs.

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How does FiT differ from or work with Renewable Portfolio Standards (RPS)?

- One FiT proponent characterizes RPSs as a *target* and FiTs as a *mechanism*.
- FiTs, as noted above, set fixed prices for renewables. Then, in theory, the market determines the quality of the various technologies that get installed. FiTs are for energy purchased by the traditional power utility from renewable energy producers.
- RPS is legislation that establishes the quantity of renewables that traditional power producers must use in their power supply. RPSs can be met through utility investment in renewable power generation or purchases of renewable energy credits.
- FiTs go beyond what are mandated by RPSs by requiring customers to pay for renewables or giving them the voluntary option, depending on how the legislation is written.

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How do 'net metering' and 'feed-in tariffs' differ?

- Net metering is an electricity policy and accompanying technology that allows electric utility customers that are able to generate renewable energy for consumption on their site to calculate their net cost after subtracting power they delivered from the power they received from the utility. Net metering provides the technology to calculate this amount and calculate it as a net amount within the meter. This saves the utility from needing to record multiple billing values during the data collection process and performing calculations to determine the net value.
- Net metering allows a utility customer to produce energy for their use on their own site. Net metering assumes someone is already the customer of a conventional power utility, so they're already hooked to the power grid. Net metering policies allow such customers to produce electricity and 'store' any excess on the grid for later use. In essence, the customer's meter runs in

reverse. With net metering, the customer is simply a customer. As such, the customer never produces more electricity than s/he consumes.

- Feed-in tariffs don't require a renewable energy producer to be a customer of the power utility to sell power to it, but the reverse is true: FiT policies require the utility to buy the renewable power at a rate set by the government. With FiTs, the customer is the conventional power utility, which as noted, is required to buy from the renewable energy producer.
- Net metering requires one meter; FiT requires two – one to measure power consumption, the other to measure generation.
- Net metering and feed-in tariffs can be implemented simultaneously.

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Proponents of feed-in tariffs say that FiTs:

- are a great policy mechanism to produce rapid growth of renewable energy in;
- are a means of eliminating the return-on-investment barrier that inhibits wider market penetration by renewables by lowering upfront costs for purchasing and installing renewable energy technology;
- are more egalitarian than other policy mechanisms and allow people to participate in the "renewable energy revolution" at a profit. They also claim that FiTs are more equitable than subsidizing renewables through taxes, because consumers who use a lot of electricity will pay more for renewable generation than those who use less;
- have been used successfully to develop large amounts of geographically dispersed renewable sources of generation quickly in Europe;
- allow producers to 'sell power to the grid,' but not 'back to the grid.' They make the distinction because 'selling back to the grid' indicates that someone is already a power customer who is buying power from the grid;
- significantly increase the use of renewable technologies, which drives the costs down, so they become competitive with conventional electricity.

Some FiT proponents advocate for a combination of programs including FiTs, a retail electricity program aimed at energy conservation, a whole-sale electricity program, and RPS policies.

Locally, some advocates contend that the FiTs are a community marketing tool because they generate publicity for the community.

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Most of the information available about FiTs is favorable, of course, because proponents have either a financial or environmental/social stake in the adoption of FiTs. But there is another side to the story:

- Feed-in tariffs are extremely hard to calculate using a political process instead of the market. The most common problem is setting the prices (tariffs) too low, and not attracting the desired amount of investment by renewable energy producers, or too high, and dramatically driving up electric rates for end users. Another problem, proponents claim, is setting a limit on project size, or setting it far too low, or setting a limit on program size that is too low to allow ample industrial capacity to develop.
- To make FiTs work, the government has to set the price at exactly the right level to induce a significant level of investments, but not so high that it amounts to wasteful give away of ratepayer money. The chances that government will set the prices at just the right level to create a market for renewables without wasting a significant amount of money are slim.
- Once producers get used to a very lucrative payment for their power, they are reluctant to see it reduced or stopped. Though their original investment in the technology may be paid off, they love the generous price-support income and want utility customers to continue paying them handsomely for generating renewable power. The issue becomes political with an expectation that even after grid parity is achieved it is important to retain the non-price provisions of FiTs such as purchase guarantees, guaranteed grid access and long-term contracts. In short, there will be political pressure to turn the 20-year contracts into permanent agreements.
- Feed-in tariffs do not encourage energy conservation.
- Unlike the smaller European markets, the U.S. is huge with thousands of public utilities and a transmission system that is just beginning to adapt to renewables. The size and complexity presents numerous policy, pricing and legal challenges that complicate the adoption of feed-in tariffs from the FiT proponents' perspective. (The opposing view would be that America's affordable, reliable power supply is the result of a dispersed, market-oriented power system.)
- One of the obstacles for effectively implementing FiTs in America is that conventional electricity prices are low. That leads to a motivation by renewable energy advocates to try to drive up prices for traditional power by restricting use and development of some fuel sources. Hence, the 'war' on coal and oil drilling.
- If the government-set pricing scheme is wrong, it can have an adverse impact on the renewables industry if a sudden pullback on the prices for renewable energy is required. The most cited example is the collapse of the Spanish solar market in 2008 when FiTs were rolled back.

- Another criticism of FiTs is that they are heavy-handed and arbitrary intervention by government. Effectively, government is setting the prices for electricity and picking the winning and losing technologies. Politicians and bureaucrats can rig prices to benefit certain technologies based on political agendas and connections rather than technological and economic merit, which market forces are good at ferreting out.
- FiT prices are very generous, so individual renewable power producers and renewable energy manufacturers benefit handsomely, but at the expense of utility ratepayers. That's fine for ratepayers who voluntarily choose to participate in the program. It is not fine if the program is mandatory, unless it is adopted by residents at the polls.
- In theory, the high embedded economic subsidies of a FiT policy would be offset by a rapid reduction in costs associated with expanded use of renewable energy technology fostered by the FiT and the avoidance of expenditures on the development of additional fossil fuel supplies. In light of the rapid growth of energy demand in the world, FiT policies might actually be a determinant to developing all energy sources needed to meet demand because it shifts financial resources to technologies that are relatively low-yield in comparison to others such as clean coal and nuclear.
- Europe is cited as the model by renewable energy proponents, but there is another side to that story. One of the most damning cases against subsidizing renewables including FiTs is an article by Andrew Walden, February 13, 2010 titled "Wind Energy's Ghosts." He specifically notes that wind developers are fleeing Europe for America after leaving taxpayers in Spain, Portugal and Greece on the hook for billions of dollars. "…(T)he European Union has moved ahead of the US on efforts to subsidize 'renewable' energy – including a 'Feed in Tariff' even more lucrative than the ISO4 contracts. EU governments provided government-backed securities to support utilities burdened by Feed-in Tariff costs. But last year, as the national debt of wind-intensive EU countries became unbearable, the EU subsidy bubble burst…Dr. Gabriel Calzada, Professor of King Juan Carlos University in Madrid explained what Feed In Tariffs and other wind subsidies did to Spain (as well as Portugal and Greece) …:

  > 'The feed-in tariff…would make (utility) companies go bankrupt eventually. So…the government guarantees…to give back the money in the future – when (they) are not going to be in the office any more. Slowly the market does not want to have these securities that they are selling. Right now there is a debt related to these renewable energies that nobody knows how it is going to be paid…'

  In early 2009 the Socialist government of Spain reduced alternative energy subsidies by 30%."

- Spain, Portugal, Greece, the Czech Republic and South Korea all have had to alter their FiT programs due to crushing costs. A couple of U.S. examples include the Salt River Project in Phoenix which cut its homeowners' rebate by 10% in June 2009 because the utility was spending 'more than it budgeted for solar power, a result of a surge in demand as more solar installers moved into Arizona and government incentives kicked in'; and California which has quietly been reducing its rebates (29% cut). (http://www.pv-tech.org/lib/printable/6078/)

Issues for the Chamber to Consider Relative to Feed-in Tariffs

At this writing, a specific proposal to adopt feed-in tariffs in Fort Collins does not exist. Therefore, the following points are general in nature. They are simply a collection of relevant observations, positions and questions that at this writing are disjointed and do not represent a coherent position.

- The Chamber supports the development of clean energy for environmental reasons and as a means of broadening the state's and nation's energy portfolio to meet growing energy demands.
- The Chamber supports the development of renewable energy as one subset of clean energy, but not at the exclusion of clean energy such as cleaner burning coal and nuclear power. The assumption upon which FiTs is based is that renewable energy is THE answer for reducing carbon and meeting the world's growing energy demands. In contrast, the Chamber believes that a broad portfolio of energy sources needs to be developed to meet the demand for affordable energy, including clean energy technologies that some might not classify as 'renewable.' FiTs effectively pit renewables against other viable clean energy technologies and use government power to rig the game in favor of renewables.
- The Chamber supports the development of clean and renewable energy technologies as an economic development strategy for Colorado and the Fort Collins region within certain parameters. That is why the Chamber helped found the Northern Colorado Clean Energy Cluster, which is focused on the economic development of clean energy.
- The Chamber is a strong supporter of free enterprise. It believes that markets are the proper mechanism for testing renewable energy concepts and technologies. Risk and innovation should be rewarded by a commensurate level of profits. The so-called 'profits' generated by renewable energy producers do not come from innovation and a commensurate level of entrepreneurial risk. Instead, they represent the transfer of money from electric utility ratepayers to a relatively small group of people that would assume very little risk for installing the technology. Basically, the government

is rigging the system in a way to benefit the few that can install the technology at the expense of the many.

- The Chamber supports the wise and selective use of incentives and tax exemptions and credits to attract and retain primary employers to the area. The Chamber believes government can play a role in supporting and incenting the development of technologies through the tax code, and research and development grants. The Chamber does not believe government is the proper mechanism for setting prices on renewable energy and selecting specific renewable energy technologies.
- Generally, the Chamber supports entrepreneurial, market-driven activities over monopolies. Rarely, but occasionally, there are times when public monopolies seem to work when they have specific, non-political missions. One such example is the Platte River Power Authority, which was established to keep Northern Colorado independent from Denver and power providers like Xcel Energy. The mission of PRPA has been to provide reliable, affordable power to Fort Collins, Loveland, Longmont and Estes Park. More recently, some politicians have tried to impose social and environmental agendas on PRPA. So, while in a way, feed-in tariffs incent private energy investors and entrepreneurs to take a risk and make investments, they are yet another example of environmental agendas being imposed on PRPA and Fort Collins utilities. In short, the argument that feed-in tariffs spawn entrepreneurial activity is undercut by how it is done (large price supports) and the fact that it undermines the 'affordability' precept of PRPA.
- The Chamber believes that the Platte River Power Authority has served the communities of Northern Colorado very well since it was founded in 1973. It provides reliable power at competitive rates, and PRPA's Rawhide Plant is one of the cleanest coal-burning power plants in America.
- The Chamber believes that people should have the option to voluntarily decide whether to participate in programs like feed-in tariffs and the City's wind energy program.
- If the City Council is inclined to socialize the cost of renewable energy development by adopting a mandatory feed-in tariff scheme, it should take the measure to the ballot.
- City officials should have strong reservations about granting long-term contracts to renewable energy producers without the flexibility by the City to change or terminate those agreements. Energy technology is changing rapidly. A major break-through in energy production or storage during the next 20 years (the typical length of contract for FiTs) and widespread adoption of renewable technologies could drive energy prices down. Fort Collins ratepayers, obligated to paying the high price supports in the form of FiTs would be left paying a high price for energy. The same argument can be used about financing current power technology at the Rawhide Power Plant: the

ratepayers assume an obligation and risk by selling long-term bonds to support technology that may be supplanted by cheaper technology in the future. One difference is that those older technologies and fuel sources are proven and have been in wide use for over a long time, whereas the newer technologies have more limited use, many are unproven over the long run and the entire 'renewable energy industry' is in a state of upheaval as various technologies vie to prove their viability.

- The economic development benefits of FiTs to Northern Colorado are unclear. While some residents, cooperatives, farmers, and businesses who become renewable energy producers by installing renewable energy technology and selling power to the grid might use local manufacturers, there is no guarantee that they would do so. The economic development benefit to the residents of Fort Collins should be the overriding consideration by the City Council for adopting FiTs. If the economic development case cannot be clearly and compelling demonstrated, the City should not adopt feed-in tariffs. A key question is: Is the adoption of feed-in tariffs a community economic development strategy? For $2-4 million per year, would the community benefit by attracting capital investment, research, company relocations or expansions and notoriety as a center for renewable energy?
- Do locally adopted feed-in tariffs help Fort Collins become a test bed for some of these renewable energy technologies? Is that beneficial?
- A fuller examination of the possible adverse economic impact of higher electric rates on disposable income (less money for consumer purchases) and Fort Collins' competitiveness for primary employers should be undertaken if FiTs are seriously considered.
- City Plan devotes a section to 'Community Appearance and Design' and aesthetics is a regular topic of conversation among Council Members. How would the City regulate the appearance of solar, windmills, biomass, etc in the community, if FiTs are adopted and spur a surge of requests to implement renewable energy production technologies on homes, businesses, common areas, etc?
- What is the City's objective? Stable and affordable power rates and a reliable power system? Reducing carbon emissions to stop global warming? Foster the renewable energy sector as an economic development strategy? Some of these objectives conflict and would require careful thought and discussion. Some proponents like Wirsol are active supporters of feed-in tariffs as a business development strategy for their company. Do their objectives mesh with the long-term economic needs of Fort Collins?
- In its examination of this issue, is the City Council listening to both proponents of FiTs as well as those who are skeptical? Is it listening to issues being raised by its utility professionals? FiTs are complicated and can have a profound impact on the community, but like so many issues related to

renewable energy and the environment, they are can be offered simplistically as 'the right thing to do.'

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