

# Learning Resources

## Part II: Energy – Feed in Tariffs



# Urban Pathways Energy

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Environment, Nature Conservation,  
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based on a decision of the German Bundestag

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Feed in Tariffs



# What are Feed-in Tariffs?

- Feed-in Tariffs (FITs) are a policy measure in which producers of electricity are offered a set price for any electricity they feed-into the electricity grid
- FITs provide investment security by offering a pre-set price for electricity generated, which otherwise would vary greatly
- The costs for FITs can be borne by consumers directly, (as in Germany), by taxpayers (as in the Netherlands), or a combination of the two approaches (as in Spain)

# Example of FITs

- Between 1990 and 2011, 23 EU member countries implemented a FIT to support solar PV or onshore wind development amongst them Italy, Denmark, France and the UK
- They are typically implemented at the national level, but some cities have implemented them (in the absence of national-level action), such as the City of Cape Town in South Africa, and Palo Alto in the USA.



## Results

- FITs have proven to be one of the most popular policies for increasing renewable electricity generation
- EU countries, which have implementing them have installed 70,000MW of solar PV and wind capacity between 2000 and 2009



## Financial considerations

- Assuming the costs of a FIT are included in the electricity price paid by consumers (as in Germany), the financing burden on local authorities is low (e.g. in the Netherlands, it is funded from tax revenues or from elsewhere, these may be borne by the local authority)
- FITs typically don't involve investment in generation capacity by governments, so the financial considerations for local authorities should be low to none, as investments should be undertaken by private actors
- As they reduce the uncertainty in income levels from electricity generation, they should ease financing investment in appropriate renewable electricity generation for those actors



# Technical considerations

- The technical considerations for local authorities include:

1. the safe mechanical and electrical installation of generation equipment
2. metering the electricity fed into the grid
3. The local-level electricity grid must also be able to accept electricity fed-in at household level
4. A mechanism should be in place to control the amount fed-into the grid for safety reasons, to avoid overloading the grid with excess capacity

- A further consideration is that of grid balance, which is usually within the remit of DSOs or TSOs
- While the amounts fed into the system remain small, grid balance will remain within usual variations, and easily balanceable by existing systems; if however the amounts fed in reach the limits of local balancing systems, counter-measures will be required



# Policy/Legislation

**FIT policies should cover the following aspects**

- How the FIT will be funded
- Pricing (define how much generators will be paid, for what kind of generation, with what limits on each producer, but also on the whole system)
- Grid access (allowing generators to connect generation equipment to the grid)
- Safe connection of generation to the grid
- Grid absolute and balancing capacity



# Institutions and critical stakeholders

- A lead agency identified within the local authority should be responsible for electricity supply, generation and or distribution, or energy (efficiency) matters in general.
- Funding support is needed from tax or rates if the FIT will be funded from these sources.
- The national level may also need to change.
- National-level agencies, or the bodies/companies responsible for the grid and electricity generation, may also need to be included concerning matters related to generation, grid capacity and balancing.
- Other relevant stakeholders include responsible for or representing electrical worker training and/or certification regarding proper and safe installation and maintenance of systems and also line/equipment maintenance.



# Example: City of Cape Town

- The City of Cape Town is South Africa's second most populous city, with 3.7m people inhabiting its metro area
- It has set itself the goal of reducing its CO2 emissions by 37% of 2012 levels by 2014, 9.3% from electricity efficiency, 15.9% from cleaner electricity supply (and 11.2% from transport efficiency)
- Currently, most of the city's electricity is generated from coal, but 3.6% of the supply utility's generation is from renewables

## In action

- Cape Town is responsible for electricity distribution and retail for 75% the city
- With the drop in price of PV panels, it is becoming feasible for wealthier customers to install systems to go off-grid, undermining the system
- To avoid the need for licensing according to the Electricity Regulation Act, Cape Town's FIT applies only to installations below 1MVA ( $\approx 1\text{MW}$ ) – means customers must use more than they produce
- Adoptees of the FIT are “small scale embedded generators” not independent power producers as “these require an expensive license to operate, and are subject to rigorous safety checks”
- On the technical side, a qualified engineer must certify their system, which is expensive

# Results

- The policy should contribute to the City of Cape Town's goals of reducing GHG emissions from electricity
- It will maintain its incomes from the electricity business &
- maintain the presence of wealthier customers on-grid and thus subsidies for the city's poorer residents
- It can be expected that there will be jobs created from installing and maintaining the systems
- The national regulator, NERSA, has undertaken stakeholder consultation on the regulation surrounding small-scale embedded generation and is currently drafting (new) legislation on the topic
- 17 further municipalities in South Africa's Western Cape province have adopted SSEG policies (or are doing so)

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