

Stimulating Renewable Energy through Public and Private Procurement

SUMMARY

Local governments have two ways of pro-actively promoting sustainable procurement of energy. First, they can adopt public sustainable procurement (SP) practices in their own operations, *i.e.* introduce sustainability criteria in local government/municipal purchasing decisions of goods and services. Second, local governments can implement strategies that facilitate and enable private actors to have a SP choice. For instance, the *GreenChoice Program* in Austin in the United States (US), active since 2001, played an important role in the city's climate and energy agenda by stimulating the initial demand for renewable energy (RE) based electricity, facilitating municipal and community procurement of RE. Without any significant upfront investment by the local government, they were able to increase demand for RE above a critical threshold by providing new energy options to customers as well as buying into this option themselves through public SP. This sent a strong signal to energy suppliers; led to lower and more stable costs in the long run and contributed to wind energy becoming a cost-competitive option in the region as the price of fossil fuels increased.

INTRODUCTION

RENEWABLE ENERGY PROCUREMENT AS A MARKET-BASED POLICY TOOL

Every purchasing, leasing, rental or service procurement decision has an impact on the environment and society. Even choices regarding energy use in an office or the type of printing paper can have a significant impact. The act of buying or procuring typically describes an organisational

Figure 1: Wind Farm in Austin

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process for obtaining equipment, materials or supplies, but can also be extended to utilities and services. This process, in principle, also applies to decisions made by households and individuals. In this context, SP refers to the act of taking sustainability considerations into account when making a procurement decision, such as thinking carefully about what to buy; avoiding unnecessary procurement; considering the environmental performance of the product and services purchased; as well as the social and economic impacts of available options. This ranges from decisions on purchasing recycled paper or fair trade coffee, to goods and services with higher energy efficiency standards, all the way to purchasing energy (electricity, fuels, etc.) which includes RE criteria. Local governments are considered to have two ways of pro-actively promoting SP (next to softer approaches like awareness raising, framework giving targets, etc.):

Public sustainable procurement. First, local governments can adopt public SP practices in their own operations, such as including sustainability criteria in local government/municipal purchasing decisions of goods and services (e.g. cleaning services, energy consumption). This is also known as public SP. Local governments are significant energy consumers through their operations (e.g. public buildings such as hospitals, schools, offices and street lighting). Their market share as energy consumers has the potential to trigger a supply side shift in favour of RE, especially when efforts are co-ordinated at a regional or national scale.

Facilitating private procurement. Second, local governments can implement strategies that facilitate and enable private actors to have a SP choice. A greater shift in demand can be achieved when local governments manage to engage other energy consumers, *i.e.* households and businesses. Local governments can facilitate private procurement through targeted policies that enable and incentivise private actors to purchase RE. This can be supported by regulatory and other legal or financial instruments. Examples include:

- » **Green procurement contracts for energy.** Where local governments are involved in energy provision, they can offer a RE choice to energy consumers. This would, for example, be the case where they own or have a say in the local energy utility (electricity or heating).
- » **Renewable energy portfolio standard.** This is a legal obligation that requires the energy provider (e.g. electric utility, fuel stations, etc.) to include a specified share of the electricity to be sourced from RE.
- » **Energy subsidies, grants and loans.** RE can be made more attractive through financial mechanisms to keep prices competitive. These financial mechanisms are targeted especially at the generation of RE to achieve a certain scale or maturity to be competitive in the market.
- » **Feed-in tariffs.** Local governments can create a stable fiscal environment for the development of RE markets by providing long-term purchase agreements to producers for the sale of RE-based electricity generation. The rationale is to promote investments in the production of RE by offering a certain assurance to producers.

CONTEXT

A LOCAL SUCCESS STORY OF THE ENVIRONMENTAL MOVEMENT

Since the 1960s, Austin has had a strong environmental movement and many citizen-based coalitions. By the 1990s, collective environmental achievements helped to portray Austin as a leading “green city” in the US. One of the local government’s environmental objectives is to reduce the city’s greenhouse gas (GHG) emissions.

CITY IN FOCUS:
Austin,
Texas, US
Population
0.8 million
(2011)

The 2008 *Austin Climate Protection Plan* sets the following targets:

- » Power all local government facilities with RE by 2012.
- » Develop a local government fleet of carbon-neutral vehicles by 2020 using electric power, non-petroleum fuels, new technologies, mitigation and other measures necessary.
- » Meet 30% of all energy needs through the use of renewable resources by 2020 by including at least 100 megawatt (MW) of solar power.
- » Make all municipal facilities and fleets carbon-neutral.
- » Achieve 700 MW of new energy savings by 2020 through energy efficiency and conservation efforts.

In response, Austin Energy developed a *Resource, Generation and Climate Protection Plan to 2020* (published in April 2010) to reduce GHG emissions within its generation portfolio. This set more ambitious targets than those adopted by the local government by proposing an increase in the RE goal to 35% and a 100 MW increase in the goal for new energy saving by 2020. The plan benefited from the review of customers of Austin Energy, the City of Austin Electric Utility Commission, the City of Austin Resource Management Commission, and the council-appointed Generation Resource Planning Task Force.

Austin Energy provides services within the City of Austin, Travis County, and a small portion of Williamson County. It has annual revenues totalling USD 1.2 billion. As a publicly-owned power company and a department of the City of Austin, the Austin City Council sets Austin Energy's policies and strategic direction. Austin Energy returns profits to the community annually - helping to fund local government services such as fire, police, emergency medical services, parks, and libraries.

DESCRIPTION OF ACTIVITIES

THE LOCAL GOVERNMENT ACTING AS FACILITATOR, THE FIRST STEPS TO WIDER CHANGE

The *GreenChoice Program*, active since 2001, played an important role in Austin's climate and energy agenda. The programme facilitated municipal and community procurement of RE and was able to stimulate demand for RE electricity early-on. The *GreenChoice* offering allowed electricity consumers to make a green purchasing choice to help the environment, while also providing them with an attractive pricing scheme. This created an increase in demand for RE, which helped in making wind energy cost-competitive.

As part of the *GreenChoice Program*, Austin Energy purchases energy from certified RE sources in the state of Texas. These are documented via the tradable non-tangible Renewable Energy Credits (RECs), which represent proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible RE resource. Initially, the amount purchased by Austin's energy utility provider was based upon consumer demand (subscribed usage) with the energy purchased having a very local focus, such that it was only allowed to take on new subscribers once additional local RE could be supplied. This approach is different from programmes that simply purchase RECs from the national or international electricity market as needed.

HOW DOES GREENCHOICE WORK?

The rationale of the programme is to open up the local energy market to other energy sources by exposing electricity producers to the demand for RE and to provide consumers with a RE purchasing option. In the process, the public is acquainted with the concept of buying green energy. To subscribe to the *GreenChoice Program*, customers are required to sign a multi-year electricity supply contract with Austin Energy. The contract is legally binding and requires a firm commitment. Like all Austin Energy customers, GreenChoice clients are billed with a charge covering administra-

tive fees, operation and maintenance of the electric grid, etc. This electricity bill is calculated based on the GreenChoice user fee instead of a traditional fuel price.

GreenChoice customers do not necessarily only have environmental benefits in mind, but *GreenChoice* could also be a smart financial option. While the price per kilowatt hour (kWh) offered by *GreenChoice* has sometimes been higher than the conventional electricity price, subscription to the programme gives long-term price stability. This provides protection against fossil fuel price volatility and allows prices to at times be lower than conventional electricity prices. On these occasions, GreenChoice customers make financial savings. Providing certainty for long-term planning is particularly desirable among businesses, as the price stability allows them to “lock in” energy costs over a longer period of time, thereby facilitating long term financial planning. Businesses can also use the green energy choice as a branding strategy, *i.e.* by subscribing they can show their contribution to protecting the environment.

Each offering, or *batch*, of *GreenChoice* is based on the cost of the supply contract of a particular source of RE plus some smaller costs to bring the energy to Austin customers, including the administrative fees of the Electric Reliability Council of Texas (ERCOT), which oversees the largest Texas electric grid that also covers Austin Energy.

CHANGING MARKETS DYNAMICS OF GREENCHOICE

In 2008, several factors led to a price increase of the new *GreenChoice* batch (known as *Batch 6*) and initiated more general discussions for a new pricing model for the programme. The price increase for *Batch 6* was a result of various factors including the world-wide shortage of steel, which caused a delay in steel supply and dramatically increased steel prices, and uncertainty around the electricity transmission infrastructure. These were relevant factors, because the existing transmission lines were inadequate to meet the increasing electricity supply from wind energy in West Texas to other parts of Texas. This in turn, lead to a review of the ERCOT system administrative fees. At the same time, uncertainty remained over the extension of the Production Tax Credit (PTCs), which had helped to accelerate the rate of investment in wind power through tax breaks. These factors were all exacerbated by the economic downturn gripping the country at the time. Yet considering that the local interest for RE was still high, Austin Energy supported a large transmission line extension proposed by the Public Utility Commission. The additional transmission fees charged by ERCOT were spread over the entire customer base. All in all, the elements mentioned above resulted in the latest *GreenChoice* supply contracts, *Batch 6*, being a relatively more expensive and slower selling offering compared to the previous *batch*. These developments limited the growth of the *GreenChoice Program*.

GREENCHOICE PART OF A WIDER SHIFT OF THE LOCAL ELECTRICITY PROCUREMENT

GreenChoice was a highly successful programme in the 2000s and represented an important step towards changing the demand of energy users and facilitating the growth of RE electricity provi-

Renewable Energy in Texas

Austin's climate agenda is complemented by the impressive growth of the State of Texas' RE industry. This is the result of a combination of factors, including the abundant supply of RE sources (in particular wind and solar), improved technology, and a supportive tax and incentive framework (*e.g.* PTCs). Today, Texas is ranked at the top of the US states in terms of RE production. In 2012, Texas was home to over 40 grid-scale wind farms, with a total installed capacity of around 11,000 MW. This is more than 20% of the total installed wind capacity in the US.

Source: Head, 2011

Figure 2: Austin Energy advertising *GreenChoice*



sion. However, with and since *batch 6* its approach has had to evolve to respond to changing market conditions. As a result of a fundamental shift in the way Austin Energy prices wind power and its rapid expansion of supply across Texas, wind energy in Austin is now in principal cost-competitive with other conventional energy sources. This allowed Austin Energy to incorporate significant percentages of RE into its regular fuel mix; over 27% as of December 2012. These factors all make special *green* pricing unnecessary in the way they were employed a decade ago. While *GreenChoice* is still an active programme in Austin, it is changing with this new reality. Austin Energy is currently redesigning the programme to be a premium product based on the entire RE portfolio, rather than tied to one specific source.

GreenChoice will continue to offer contracts no longer than five years and it will not tie offerings to a specific renewable source, but to a portfolio of RE sources. Customers who like the stability of a fixed multi-year price are expected to still be attracted to the programme, as will customers who want to purchase 100% renewable electricity. It is predicted that in the future, the *GreenChoice Program* will still be a viable option for Austin Energy customers who want to use 100% RE. Through the *GreenChoice Program*, Austin is continuing to expand its RE portfolio and hopes to meet its 35% RE goal by 2020. The details of how the *Green Choice Program* will further evolve since *batch 6* are expected to be released by Austin Energy in the near future.

In addition to playing a crucial role in the implementation of the initiative, the local government of Austin is itself a subscriber to the *Green Choice Program*. In October 2011, the municipality enrolled all its electric accounts to *GreenChoice*, becoming the largest local government in the US to power all of its facilities with 100% green energy (excluding street lighting, and the non-renewable power plants owned by the municipality).

RESULTS

ELECTRICITY CONSUMPTION AND CO₂ EMISSIONS

The *GreenChoice Program* created a demand for RE among customers who were willing to pay more for a long-term fixed green energy price. *GreenChoice* was the most successful voluntary programme in the country for nine years. With the adoption of *Austin's Climate Protection Plan* in 2008 and *Austin Energy's Resource, Generation and Climate Protection Plan* to 2020, which set a 35% RE target, it has contributed to substantially increasing the share of RE in the portfolio of Austin Energy. Today Austin's residents are procuring more RE than ever. RE represents an increasing share of the regular portfolio of Austin's energy utility *i.e.* it is estimated to reach more than 27% by the beginning of 2013. *GreenChoice* meanwhile is only part of that portfolio.

By providing a RE procurement option to private actors, the *GreenChoice Program* has been part of a comprehensive approach to reduce the energy-related carbon emissions of Austin. While it is

Table 1: RE electricity procurement by Austin Energy and avoided CO₂ emissions

Year	Total Renewable Energy Purchased Annually by AE (GWh)	Avoided CO ₂ e Emissions (in metric tons)
2011	1246	351,888
2010	1245	376,417
2009	1279	318,754
2008	797	300,300
2007	649	230,412
2006	663	165,593

Source: Austin Energy

difficult to isolate the direct impact of the *GreenChoice Program*, the effects on the production of RE and on the environment are evident.

BROADER SCALE CHANGE: COST COMPETITIVE WIND ENERGY

While the *GreenChoice Program* has kick-started the process of increasing demand for RE, the supply of RE by Austin Energy meanwhile goes well beyond the *GreenChoice Program*. RE is now cost-competitive with conventional sources of energy in Austin Energy's electricity mix. This has been achieved through a fundamental shift in the way Austin Energy prices wind power (it is an energy source that does not need to be refined or burned to produce electricity, and its price should reflect that) and as a result of the rapid expansion of supply across Texas. This means that unlike a decade ago, there is no need to charge a special premium price for *green* energy. RE is now a core part of Austin Energy's regular electricity mix, so that all customers are now getting a portion of RE.

COSTS AND FINANCING

The *GreenChoice Program* did not require any significant expense or investment by the local government of Austin. Instead, it was designed to support the demand for RE and therefore to make its provision economically self-sustaining. The municipality facilitated the process of providing a different energy option to customers, as well as buying into this option itself through public SP. When looking at the municipality as a subscriber of the programme, the purchase of RE goods and services did represent a higher cost over more conventional energy sources. In the 2012-2013 approved municipal budget, the subscription to the *GreenChoice Program* for 100% RE implied a USD 493,287 increase in electricity expenses, over the 2010-2011 budget.

LESSONS LEARNT FOR REPLICATION

GREEN PROCUREMENT EXTERNALISES INVESTMENTS IN RE

RE public procurement practices are particularly convenient as they normally do not imply any significant upfront investment from the local government. However, they typically may come with higher user fees, depending on the market dynamics and structure. In the case of Austin, the local government's interest and involvement created a higher demand for RE among other energy users. This sends an important signal to energy suppliers to increase such offers and enlarge the RE market, which is likely to lead to lower (and/or stable) costs in the long run as the price of fossil fuels are expected to increase.

MATCHING UP THE LOCAL LEGAL AND INSTITUTIONAL FRAMEWORK

The different characteristics of the legal and institutional framework of the energy market, as well as residents' behaviour, might require different solutions when rolling out RE options. The local government can act as a consumer and lead by example, or enable RE procurement. Local and regional conditions can be more or less enabling (e.g. state or national tax breaks, public ownership of the electric utility, etc.).



Figure 3: Skyline of Austin, Texas

SCALING UP RE THROUGH PUBLIC PROCUREMENT

Local governments can purchase RE and thereby help to increase demand of green energy above a critical threshold. Depending upon the size and extent of a local government's operations, their share of and impact on the RE market can vary. Successful municipal procurement policies should include a strategy to encourage and allow households and businesses to also engage in the market.

MATCHING DEMAND WITH SUPPLY

SP can be successful in raising the demand for RE at the local level. An increase in demand needs to be matched by an adequate supply to avoid undesirable price swings or energy shortages. Local governments can support supply growth with policies and by providing strategic direction for local energy utilities. The successes achieved by the community and the long-term engagement of the municipality can also further shape residents' environmental awareness while contributing to a shift toward a more environmentally concerned lifestyle. Depending upon their legal responsibilities and abilities, the local government can also develop financing models, as well as play a key role in bringing investments from other actors together. A dynamic market approach is needed with flexible solutions according to changing market conditions.

PRICE GAP BETWEEN RE AND CONVENTIONAL ENERGY

The success of green procurement policies depends in part on the (cost) competitiveness of RE. Local governments have different possibilities to address this, e.g. providing special conditions for RE consumers to outweigh the price gap, advertising the benefits of a RE choice, etc. State and national fiscal mechanisms, such as tax breaks, are also important for creating the right enabling conditions. Subsidies for conventional energy do not normally fall under the jurisdiction of local governments, which can be a major restriction to local government action.

Wind energy in Cape Town, South Africa (population 3.4 million, 2007)

The City of Cape Town, South-Africa, is committed to source at least 10% of the city's energy needs from RE by 2020. The procurement of RE from power plants such as the Darling Wind Farm contributes to this goal. The Darling Wind Farm, comprised of four 1.3 MW wind turbines and is the outcome of a ZAR 74 million (ca USD 8.3 million) national pilot project financed by the Development Bank of South Africa, the Central Energy Fund, the Danish Government (Danida) and a private developer, Darling Independent Power Producer. In 2006 the City of Cape Town enabled the project by signing a 20 year contract with Darling Wind Power, the developer of the wind farm. The electricity is fed into the national power grid and "wheeled" to the city. The green attributes of the purchased electricity is being made available for purchase by electricity consumers who want to "green" their electricity consumption through the sale of Green Electricity Certificates.

Source: *Cape Town Green Map (2010)*, *Capetonians can now buy green electricity* (accessed Nov 2012) www.cape-towngreenmap.co.za/

State policy to enable local action, *Community Choice Aggregation, US*

In the US states of Massachusetts, Ohio, California, New Jersey and Rhode Island, the *Community Choice Aggregation* (CCA) approach is being explored, as a mechanism to purchase RE. The CCA is a state policy that enables local governments to aggregate electricity demand within their jurisdictions in order to procure alternative energy supplies, while maintaining the existing transmission and distribution service providers. The policy allows cities and counties (or group of cities or counties) to aggregate the buying power of individual customers within a defined jurisdiction to procure the desired kind of electric energy (e.g. produced from renewable sources). As opposed to an electric utility, a CCA does not own the transmission and delivery systems (i.e. the poles and wires); instead, it is only responsible for providing the energy commodity (i.e. the electrons) to its constituents.

Source: US Department of Energy (accessed Nov 2012), *The Green Power Network*, <http://apps3.eere.energy.gov/>

Solar Banking System, Kanagawa, Japan (population 9 million)

Since the nuclear accident in Fukushima in 2011, the Kanagawa local government has been promoting the *Kanagawa Smart Energy Plan*. The plan integrates measures for increasing power supply through the use of solar power and other RE sources, and for cutting and shifting peak power demand. The Kanagawa Smart Energy Vision aims at achieving more than 20% RE of total energy use by 2020. The vision is built on three pronged concepts: energy creation, energy saving and energy storage. The plan seeks to realise this by installing solar panels on the rooftop of 2 million houses as soon as possible. To push this forward, the local government is promoting the *Kanagawa Solar Banking System*. Under this system, private contractors can submit plans for the installation of residential solar systems. The local government evaluates the price, applicable conditions, quantity, service area and the contractor's approach to sales and construction, and selects the qualified plans in order to ensure reasonable cost and the quality of the equipment and services. Kanagawa Solar Centre, which is operated by the local government and functions as an information centre for interested citizens, will be accepting applications for cost estimates from Kanagawa residents. The applications will be forwarded to the private contractors who submitted the installation proposals. The applicant and the contractor then negotiate and sign a contract.

Source: ICLEI (accessed Nov 2012), *Kanagawa Prefecture opens up solar power to its residents*, www.iclei.org/

Further readings:

See additional relevant case studies at www.iclei.org/casestudies, for example:

152 - Buses running on clean renewable diesel, Helsinki Metropolitan Area, Finland
117 - Improving the district heating system with renewable energy and energy efficiency, Milan, Italy

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