**Impact of localised Energy Efficiency (EE) and Renewable Energy (RE) on city finances over the next 10 years – Report**

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**Sustainable Energy Africa**

Over the past few years, steeply increasing electricity prices have resulted in increased interest in renewable Energy (RE) and energy efficiency (EE) products amongst the residential, commercial and industrial sectors of the urban economy. Although this shift has been good for the customer (energy savings) and the environment (reduced greenhouse gas and particulate emissions), it has also resulted in losses in municipal electricity sales. Since electricity sales are the biggest source of income for a municipality outside of national government funding, a decrease in revenue from electricity can have a major impact on the effective functioning of the municipality. Further to this, since it is the commercial, mid-high income residential and industrial sectors that are most likely to install RE and EE, reduced sales to these sectors will result in reduced funds to cross subsidize electricity for indigent households. As the financial case for RE and EE improves over time due to increasing electricity prices and decreasing technology costs, increased revenue losses into the future could be potentially substantial.

The REEEP funded revenue impact project set out to quantify what the impact of RE and EE into the future might be for three Metro municipalities in South Africa – Cape Town, eThekwini and Ekurhuleni. The impact needed to be assessed not only in terms of revenue loss to the municipality, but also in terms of the impact on municipal service delivery to the poor. It also attempted to determine potential strategies to minimise municipal losses and impact on the poor.

Municipalities buy electricity from Eskom at different rates over the day (hourly), week (weekdays/weekends) and year (winter/summer). In order to determine the revenue loss impact as accurately as possible, a detailed modelling exercise was undertaken which took these tariffs into account, and determined specific times during the day, week and year that electricity sales would be lost as a result of EE and RE. Uptake numbers per intervention per sector also needed to be determined. Projections were made over a ten year period, based on the viability of the financial case against technology cost and electricity price.

The results of this exercise showed that

i. A 50-85% uptake of EE interventions would be realised across all the economic sectors over the next 10 years.
ii. A 3-15% uptake of PV in the residential and industrial sectors is expected in the next 10 years. Large scale uptake is only expected thereafter, as the financial case improves.
iii. Uptake of PV in the commercial could be as high as 15-50% if current tariff conditions continue to apply.
iv. As a result of these projections, the overall revenue losses in 10 years' time for the Metro electricity departments are projected to be between 9-20% (Cape Town), 5-15%

(Ekurhuleni) and 8-15% (eThekwini). The main areas where these losses will occur are residential solar water heating and EE across all the economic sectors.

v. The impact of PV is relatively minimal, except potentially in the sections of the commercial sector where the energy tariff is particularly high (usually small commercial tariff customers).

vi. The overall impact of revenue loss on the poor is a question of political decision making, but up to 80% of the cross subsidisation of the low income tariff could be affected, or up to half of the total amount of revenue allowed to be transferred to the rates account.

In order to ensure the functionality of the municipality, these losses need to be either absorbed or minimised. The most effective strategy discussed with Metro electricity departments is the decoupling of the current electricity tariffs into an energy charge (to cover Eskom charges) and a fixed charge (to cover distribution costs). This will secure the municipal business model and even make municipalities encourage EE and RE within their distribution network.

Additional, less effective strategies include

i. A small scale embedded generation programme (NETFIT) funded by the REIPPP and managed by Eskom as a component of the national strategy to grow the renewable sector. This programme will compensate the City for lost revenue from PV, and recompense any excess generation from PV customers.

ii. More efficient business processes and working hard towards customer growth will assist in absorbing revenue losses

iii. Approaching National Treasury for additional grant funding.

As a final summary of this work, it is clear that a workable solution to the growing implementation of EE and RE needs to be found in the next 3-10 years. Decoupling lies at the heart of this solution, where without it, the long term sustainability of the electricity distribution business within South African municipalities is at risk.

Securing a municipality's finances in the face of large scale EE and RE uptake will bring about a paradigm shift within those elements of the municipality which are currently concerned with revenue. This will mean a more sustainable energy future being encouraged by the municipality as a whole.