Energy Conservation Center Ho Chi Minh City
Ho Chi Minh City, Vietnam

Energy Efficiency Information Centers & One Stop Shops

Context

Vietnam’s GDP is projected to increase by 6.3% annually to reach USD 290.7 billion in 2035. Primary energy demand in 2010 was 67.7 Mtoe, and this is projected to increase to 186 Mtoe in 2035. Oil is the largest source of primary energy supply (24%), followed by coal (23%), and natural gas (13%). The energy consumption by sector (2010) is: Residential and Commercial (54%), Industry (26%), Transport (17%). Cement and Steel industries make up over 90% of the industrial electricity consumption.

The average cost of electricity in Vietnam is relatively low. In 2013 it was 0.07 US cents per kWh, which is lower than Thailand (0.09) and the Philippines (0.27). (Green Tech Media, 2013)

Energy efficiency policies and programmes include the Vietnam Power Development Plan, and the Energy Efficiency Conservation Law 2010. The latter is a regulatory framework that mandates energy efficiency requirements for all sectors. HCMC approved the city program to implement the National EE Program (VNEEP) for the period 2009-2015. See Accompanying Measures section. (Reference: Copenhagen Centre of Energy Efficiency)

Ho Chi Minh City (HCMC) is the largest city in Vietnam, with a population of nearly 8 million residents and a land area of 2,095 square km. The city’s population is expected to grow to 20 million inhabitants by 2020. (Reference: Wikipedia.) HCMC represents about 20% of the national GDP. The economic structure is: 37.5% industry; 55% services; 6.5% construction; and 1.3% agriculture. The GDP growth rate (2008) is 8% annually.

HCMC represents about 20% of Vietnam’s electricity consumption and consumes 25-30% of national petroleum products. Its electrical demand growth rate is about 14%/year and the city faces a shortage of new energy supply capacity, as well as rising energy costs. There is increasing vulnerability to foreign energy imports, and also growing awareness of climate and environment. There is an electricity supply shortage in HCMC during the dry season of 6.4 million kWh/day or 1.1 billion kWh for the entire dry season. (International Workshop on Local Initiatives towards a Low Carbon Asia, 2011)

The Energy Conservation Center HCMC is a public agency established in 2002 to provide the best customer service, aiming at the greatest benefits for customers in accordance with sustainable development targets. The City of HCMC promotes energy efficiency and set the savings targets outlined in the Objectives section.

Objective

- To reduce the city’s electrical consumption by 5% from 2006-2010
- To attain savings in the following sectors:
  - Industry: 2-3% electrical energy savings goal; energy audits for 400-600 energy consuming enterprises
  - Buildings: 0.5-1% electrical savings goal; implementing EE program for government office, hospitals, schools, hotels and buildings
  - Urban infrastructure: 1% electrical savings goal; Retrofitting the private and public lighting and water supply systems
  - Residential: 2% electrical savings goal; target of 100,000 participating households to reduce electric consumption by 10% as compared to 2009; financial support for using solar water heating with target of 22,000 solar water heaters installed
  - Transportation: expand public transport; encourage transition
Programme description

Main characteristics

Organisation: ECC HCMC is a public agency under the Ministry of Industry and Trade.

Length of establishment: The agency was established by Ho Chi Minh City on May 10, 2002.

Target audience(s): The primary audiences are the industrial and buildings sectors. This audience includes public and commercial building sectors and industries including seafood, steel, cement, chemical, rubber, plastics, textile, garment. Other audiences include the residential and transportation sectors.

Scope: Energy efficiency across sectors (public, industry, commercial, and transport). Supports projects within HCMC and all across Vietnam. In addition to energy efficiency services, training and consultancy, it also offers renewable energy consultancy and development services (e.g., feasibility and planning studies, system design, financing). ECC HCMC has collaborated with several international partners including the UNDP, IFC, Japan, Finland, Denmark on local projects.

Funding: Public funding from multiple governmental sources depending on the project, including international organisations (e.g., World Bank, International Finance Corporation), the Vietnam State budget, and the HCM City budget.

International partners provide the largest source of funding. The HCMC People’s Committee (City government) decides on the budget priorities. The local authorities in those jurisdictions fund projects located outside of HCMC. The Ministry of Industry and Trade provides funding for training and raising awareness through for example National EE building awards; HCM City budget supports energy audits and energy management projects for commercial and public buildings audits; Ministry of Construction supports training activities in building design and operation. International Finance Corporation (IFC) supported the design of training programs to reach commercial and industrial customers.

Delivery model: The Center has a wide network of partners and different lines of business with service offerings depending on the sector and needs. In the public sector and industry, ECC provides consultancy services including energy audits, energy management services (ISO 50001), training (e.g.,
green building design, project management) and feasibility studies.

Public awareness building and training are also offered, including sponsoring energy efficiency building and green architect competitions, and maintaining a buildings database (energy consumption and solutions, standards and benchmarks, etc). The Center cooperates with banks (domestic and international) to fund projects for both energy efficiency and renewable energy. It also invests in new technologies via deployment/demonstration projects as well as service models (e.g., established Vietnam’s first ESCO). It collaborates with service providers, such as the EnerTeam at the Energy Conservation Research and Development Centre, to provide energy consultancy services (e.g., audits, design assistance, industry specific advice, etc). Both pre-prepared (e.g., Guidebook for Green Hotels) as well as bespoke advice that is customized for the customer is offered.


**Key expertise required (delivery organisation):** It employs a team of 70 professionals, focusing on project management, technology, architecture, HVAC, environment, finance and commerce. ECC HCMC also maintains a team of associates, many of who are professors, and employs technological expertise from cooperation programmes. Expertise in industrial energy systems and engineering is necessary to offer the energy management training and qualified trainers.

**Demand creation model:** ECC HCMC employs a website, which describes its overall organisation and the types of services provided. Consultants and consulting services are deployed for energy audits and implementing energy savings measures in the industrial and commercial buildings sector. ECC HCMC partners with Energy Service Companies (ESCOs), technical consultants, and universities to offer for examples energy management training for industrial/building customers, with a focus on energy management systems and continuous improvement (i.e., in theory establishing ISO 50001 management systems would help create on-going demand for energy efficiency improvement/measures) The Center has a training unit and markets and delivers classes to small and midsize enterprises on the benefits of energy management systems and solutions.

Quality assurance & control: ECC HCMC employs a Plan Do Check Act management process for its programmes (see Figure above). Evaluation and re-assessment are elements of this process. However, additional details on quality assurance and control methods or metrics are not available.

Impact/evaluation

Monitoring/evaluation schedule
The programme has undergone internal evaluations. These reports are only available in Vietnamese and are not publicly available at this time.

Market transformation
Sector specific progress:

- Industry: Assessments and energy audits conducted for 1000 customers nationwide; 6000 solutions applied; 100 enterprises advised in establishing energy management systems (ISO 50001)
- Public and buildings sector: Consulted with 43 provinces in formulating energy conservation and efficiency policies and implementation plans; Investigation of savings in airports, seaports; As of 2011, 150 energy audits implemented in commercial buildings, hotels, schools and hospitals
- Urban infrastructure: Energy audits conducted for water supply facilities nationwide; Energy audits program for city waterworks and lighting systems resulted in re-design of public and private lighting systems in HCMC and other provinces, replacing 100,000 streetlights (90% of total private streetlights) and saving millions of kWh annually
- Residential: No progress reported (10% electricity consumption reduction goal is the target)

Industry and buildings sectors (combined): HCMC conducts approximately 200 energy audits per year. In total 3,000 energy audits have been performed. Of those, 900 companies decided to invest in energy efficiency upgrades/measures.

Partner network: Partners established in about 20 countries.

Training: Training activities are held for energy management officers, energy auditors, establishing energy management systems, energy conservation, and green building design (in cooperation with UCN Denmark). Participation in training courses increased from approximately 500 individuals in 2005 to 8,000 participants in 2012. ECC HCMC also established a training centre to provide energy management training to small and midsize enterprises.

Transportation: Completed a study on EE technology transfer for vehicles and
Transport signals.

Neither programme nor project-level energy savings figures are available.

The ECC HCMC has existed for 13 years, actively working with a network of public and private partners to build energy efficiency awareness in the market (e.g., through communication campaigns). According to programme staff, public awareness of energy efficiency has increased, especially in the public and business sectors during the Centre’s tenure. Energy conservation activities are now incorporated in other domestic City programmes such as technological innovation investment, climate change adaptation and environmental protection programmes.

A broad network of local, State and International organisations and cross-cooperation is one key for success. The implementation network included key partners including: news agencies (media); power companies of HCMC; major energy consumers; a growing energy service and provider base; political organisations including women’s associations and business associations; and State management agencies. (Source: International Workshop on Local Initiatives towards a Low Carbon Asia, 2011)

International cooperation adds value through technology transfer, EE knowledge exchange and financial and technical support. For example, despite growing EE awareness among small and medium enterprises, SMEs often lack access to capital to implement desirable projects. To address this barrier, Ho Chi Minh City is working with international partners (Japan Business Alliance) to try to bridge this gap. In this way ECC HCMC tries to bridge the interests of the international lending and business community with local needs. (Source: Interview with ECC HCMC staff, 2015)

Another lesson learned is to build up a feasible strategy with an emphasis on: assessment of energy consumption patterns; accurate prediction of activities and energy trends; goal setting; and using a Plan-Do-Check-Act continuous improvement framework. While the programme has had success in promoting energy management and audits, the persistent challenge of customers’ lack of access to energy data or electricity consumption data remains an impediment for customers. (Source: International Workshop on Local Initiatives towards a Low Carbon Asia, 2011)

While significant progress has been made regarding energy efficiency policy developments, on-going challenges include: need for greater clarity and consistency of existing EE laws; a lack of monitoring and enforcement of laws (e.g., no penalties if firms do not carry out obligatory energy audits); a lack of incentives to support implementation of EE measures. There are also barriers to institutionalise implementation and coordinating management of EE programmes in the city (i.e., there are five separate departments coordinating different aspects of the programme for the various customer segments). (Source: Interview with ECC HCMC staff, 2015)

Within ECC HCMC’s charge, they make recommendations via seminars or workshops to improve the legal framework, or in general push for legal reforms in some areas.

The Vietnam National Energy Efficiency Programme (VNEEP) establishes an energy efficiency and conservation implementation plan. The government also implements energy efficiency and conservation programmes, with support from donors and regional agencies. These include Energy Efficiency Promotion in the building sector, the Energy Efficiency and Clean Production (EECP) program, and the Improvement of Energy Sector Program (new transmission lines and smart grid development). Several international partners actively support Vietnam in its energy efficiency efforts, including U.S. AID (buildings), the IFC (financing in support of GHG reduction), and the World Bank (smart grid infrastructure).

References


International Workshop on Local Initiatives towards a Low Carbon Asia, 2011. Powerpoint presentation from Ms. Nguyen Thi Hoa, Project consultant, Department of renewable energy, ECC HCMC.


Skype interview with ECC HCMC staff, 3 December 2015