

# Developing a set of policy recommendations to assist the promotion of residential energy efficiency programmes in Myanmar

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***May 2019***

## Background

Energy efficiency is a critical component of efforts to ensure energy security while limiting the environmental impacts of increased supply. The importance of energy efficiency has been recognised by the Government of Myanmar which has indicated that it will realise a 20% electricity saving potential by 2030 of the total forecast electricity consumption in its submitted Nationally Determined Contribution (NDC) to the UNFCCC for the Paris Agreement ([INDC, 2015](#)).

The Energy Efficiency and Conservation Division (EECD) of the Myanmar Ministry of Industry has undertaken several steps and initiatives to improve energy efficiency in various end-use sectors. These activities include the development of a legal framework, standards and a labelling system, preparing an energy manager training programme, and cooperation on energy efficiency project implementation with international organizations. The Myanmar Energy Efficiency and Conservation (EE&C) Law is expected to be passed in 2020, which aims to improve energy efficiency.

This document presents guidance to assist the Myanmar Government to formulate policies and strategies that can help to further enhance energy efficiency improvement activities in the Myanmar residential sector. It builds on the MECON<sup>1</sup> research project findings and was co-developed through a stakeholder engagement workshop, which was organised in Nay Pyi Taw in May 2019 and was attended by 26 delegates representing a range of academics, energy industry representatives, development organisations, and policy makers representing various ministries. The first draft of the document was presented to senior policy makers in the Myanmar Ministry of Industry and their feedback was incorporated.

Four key topics were discussed in the stakeholder workshop, deeper analysis of which could reduce the energy efficiency gap in the residential sector: uncertainty and risks; learning-by-doing to remove information barriers; principal agent issues and consumer heterogeneity. The rest of this document summarises how the policies and implementation activities can be improved, given understanding from the MECON project, recent progress and reflections from the workshop.

### 1. Uncertainty and risks

Investing in expensive energy efficiency (EE) measures may be risky for a consumer due to the irreversibility of the investment. The consumers' perception of risk is related to their trust in a product's performance and benefits. Consumers face various issues such as high capital investment risks, credit constraints, quality of electricity supply, product reliability, and uncertain benefits on bills. These issues prevent people from buying efficient appliances, even once they know they are available and feel energy efficiency is important. Key elements are:

- Higher capital cost and uncertain return on investment
- Risk that fluctuating voltage will damage the appliance leads to doubt over whether it is worth the extra expenditure.

Problem: Electricity voltage fluctuations occur which damage appliances

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<sup>1</sup> Effective energy efficiency policy implementation targeting "New Modern Energy CONsumers" in the Greater Mekong Subregion (MECON) project was funded from a grant provided by the UK Research Councils' Energy Programme, the Department for International Development (DFID) and the Department for Energy and Climate Change (DECC), and managed by the Engineering and Physical Sciences Research Council (EPSRC).

- This is due to lack of control over generation plants, poor quality transmission/distribution lines, and informal tapping of electricity lines (e.g. car workshops tapping electricity in residential areas for welding).
- The fluctuation shortens the lifetime of appliances, and so can deter people from investing extra for a new appliance.
- To address this, households pay for voltage regulators (approx. 100~500 USD per house) and safeguards (approx. 5-10 USD per appliance) i.e. there is an additional capital cost for appliances.
- Unpredictable product lifetimes also present a problem for any potential new scheme aiming to reduce investment risk to consumers through mechanisms such as insurance, rental or paying in instalments.
- Industrial activities should be prohibited in residential areas, as they are one of the reasons for voltage fluctuations.

#### Problem: High upfront costs

- Government could provide interest-free loans for consumers to buy efficient appliances.
- Retailers could allow customers to pay in instalments for efficient appliances. This could help customers to afford a new product and incentivise them to buy a more expensive efficient product.
  - This kind of scheme should be regulated so that consumers are not forced to pay significantly more in total than if they pay the full cost upfront, as that could be unfair to poorer people.
  - There is a risk to the retailer that people might not pay all the instalments. This risk could be shared between the Government and retailer to incentivise the retailer to offer such a scheme.
  - If the appliance fails due to power supply quality, the government should offer to replace the appliance, as long as a voltage regulator and/or safe guard has been used.
- Consumers could rent efficient appliances. If the customer is happy over the first few months, they should have the option to buy. Some of the technical or financial risks should be taken by a government body (EECD) rather than the retailer.
- To reduce uncertainty over the value of investing in higher cost products, the government should define a minimum energy performance rating and minimum lifetime for imported products.
  - Manufacturers should include expected lifetime on labels.
- Quality Assurance/Quality Control is needed for the EE labels on products.
  - Fake labels could become a problem as people become more aware of labelling and if efficient products become popular.
  - Customs should check the labels on imported products are accurate – a workshop participant from Customs agreed with this. This will require co-operation between Mol and the Customs department.
- Tax should be reduced for imported efficient products so that the cost is reduced.
  - This would improve the cost-benefit ratio slightly and also attract attention to efficient products and encourage another incentive scheme.
- Government could estimate the rate at which cost of efficient appliances will fall in the coming years due to technology learning and use this to set the price of efficient appliances: government could subsidise them in the short term (contributing to the learning investment), then drop the price more slowly than the real cost drops in order to recoup the expenditure.

## 2. Removing information barriers using 'Learning-by-Doing'

This section proposes to use consumers and retailers to overcome information barriers. For consumers, the process of using a new energy-efficient technology may produce knowledge about how to best use the product and the benefits (less electricity consumption, reduction in electricity bills and environmental benefits), and this knowledge could help incentivise others to buy efficient products. For retailers, the experience of overcoming information barriers and selling efficient products could be shared with other retailers.

Key questions are:

- How can consumers be encouraged to spread the word about their good experiences with energy efficient appliances? I.e. tell their friends, family and wider public about the appliances' performance or bill reductions?
- How can retailers be encouraged to spread the word about their good experiences learning about, marketing and selling efficient appliances, along with their understanding of customers' expectations and preferences?

Consumers' education, background, knowledge and experience are very important in their decisions on spending money.

- Energy efficiency should be included in the school curriculum, presented as a way to reduce environmental impact and mitigate climate change. It should be taught as part of a wider curriculum on climate change, environmental issues and the energy system.

Consumers should be encouraged to spread the word about their good experiences with efficient appliances.

- Workshop participants agreed that success stories are powerful in convincing people to follow – people are hesitant to buy a new product (due to uncertainty over the return on investment) but are more likely to invest if they see a positive review from others – the stronger the positive review, the more likely they are to follow.
  - Retailers should be encouraged to display quotes from happy customers in their shops and update them regularly with most recent ones.
  - A relevant government body (e.g. the EECD) could set up a website to gather and display reviews for efficient products. Retailers should ask customers to leave a review. The review could also include where the customer bought the product - so it would be free advertising for the retailer. The retailer could email the customer 1 or 2 months after the purchase, once the customer has seen the effect on their electricity bill. This is recommended for the future as we expect people to shop online more.
- Customers should be incentivised to share their stories/reviews.
  - Retailers could offer a small rebate where consumers are given money back for providing a review
    - Challenge: the system should be designed to ensure the reviews are genuine
- Consumers' product experiences should be shared on social media and TV. Facebook is an effective too for increasing public awareness, such as the 'Clean Yangon' programme.
  - Government could make public service announcements for TV and Facebook explaining EE with quotes/short videos from happy customers and retailers

Tagline: 'Share so your friends can benefit too!'

- Endorsements from famous public figures should be collected and spread. People follow social influencers so their power should be harnessed.
- Retailers should also display:
  - Messages about the immediate benefits of efficient appliances – the expected reduction in monthly energy bills for an average user.
  - The time expected to recoup the additional cost of an efficient appliance, based on typical usage and different electricity tariffs.
- There is currently a language barrier for efficiency rating labels. Labels should be in Myanmar language. In the short term, retailers should display a translation of the label in Myanmar language in their shops. If this works to increase customer and retailers' awareness, in the long-term Government could specify that imported goods must have a label in Myanmar language as well.
- There is a gap between retailers and consumers. Retailers give only very limited information to consumers about energy efficiency. Retailers should explain more/ give more information to consumers when they are choosing appliances
  - Retailers should be provided with more information so they understand EE better themselves:
    - Training for retailers should include how to explain about EE to consumers when they are choosing appliances, such as long-term benefits. This is already addressed in the MECON project and the EECD's current activities (seminars etc).
    - Retailers should be encouraged/told to display the efficiency rating prominently on products.
    - Retailers should get feedback from customers on their staff performance (knowledge on the product)
    - Government should provide retailers with leaflets explaining about EE which they can give to customers included estimated energy saving over a year, and an easy-to-understand page to include on their website
- We need successful stories to show-off – Seeing is believing.
  - EE improvements in public and commercial sectors should be used as examples to attract interest and encourage people to talk about the issue and implement in their own homes.
    - Local government, public buildings, hospitals and schools should be targeted for efficiency measures, then be encouraged to actively share the experience with the employees/students so they see if it is worth doing in their homes.
    - Note, large factories, hotel etc will have energy managers, whose impact should be maximised – their role description should specify that they should actively promote their EE activities in their organisations, and with customers, clients etc.
  - Retailers should implement energy efficiency measures (efficient AC, lighting etc) in their own shops, note the energy savings and use this to recommend to their customers that they buy EE appliances.
- Exhibitions for retailers and customers together could help break information barriers.
  - Physical events are also networking opportunities – people are more likely to spread the message if they have spent time learning about something.
  - Government should organise a series of EE exhibitions – retailers come and share information about their products and offer discounts if people buy at the

exhibition, seminars where local individuals who have previously bought an EE product share their experiences.

- The interest of government officials at all levels is vital – If they are trained and encouraged, they will spread the information.
- As the market share of efficient appliances increases, the costs will reduce.
- Retailers who have developed good practices of marketing, explaining and selling EE products should be encouraged to share this information with other retailers.
  - Note, some may not want to share information with other retailers because they have invested something to get the information. If a retailer finds a successful marketing strategy, they would need a strong incentive to share it with their competitors.
  - It should be explained that increasing the market share of efficient appliances is good for everyone as it will bring down the prices and spread the word faster so knowledge sharing is good for the whole industry.
  - The Government should set up a forum where retailers can share their best practice on marketing efficient products. This should focus on small retailers rather than large companies. The Government could give a financial incentive to shop owners to participate or offer some other kind of reward.

### **3. Principal agent issues**

A principal-agent problem arises when one party makes a decision relating to energy use, but another party pays or benefits from that decision. For example, the landlord may pay for electrical goods, while the tenant chooses how much energy to use and pay for the bills. Principal-agent problems may also apply to organizations, such as when different individuals are responsible for energy bills and capital accounts.

Problem - The costs and benefits of EE&C are split between different individuals in:

- Unfurnished properties – Air conditioning units
- Furnished rented properties – All appliances including AC

Suggestions on how to overcome this problem, to incentivise those who are paying to make the change:

- All rented properties could be issued an energy performance certificate (EPC). Government should accredit independent assessors to do these audits. The EPC should include a rating and recommendations to improve EE, typical savings that could be made or typical information for similar properties in the area.
- Long-term policy recommendation: Government should set a minimum EPC standard for all rented properties. The rental license should only be granted if the property meets this standard. For existing properties, landlords should be given some time to implement the changes.
- Existing properties:
  - Government could set tax incentives for landlords. This could be a tax break for landlords that install efficient appliances in their rental houses.
- New properties:
  - Government could define and set a regulation for the energy efficiency standard of new properties (condominiums, private houses, etc.)

- A maximum limit on buildings' energy consumption could be set as a regulation. It should depend on the size and number of stories. Such as Mol's research co-operating with Japan on the energy consumption of an 8-story office building.
  - City Development Committees (e.g. YCDC) should only give licences for new buildings which have efficient appliances installed. This could be included in the Building Completion Certificate.
- Idea for benefit sharing for long-term tenants: The landlord pays the upfront cost to replace an old appliance with a more efficient one. The tenant benefits from the energy saving but pays the cost of the appliance split over the lifetime – interest free.

#### 4. Consumer heterogeneity

Consumer heterogeneity may help to explain why various energy efficiency programs don't work as expected. Products that appear financially attractive for the 'average' consumer may not be attractive for some consumers because of differences in preferences, expected use of the product, and the cost of borrowing, electricity tariffs (meterless customers, fixed price customers, low tariff customers), where they live (urban/rural), education level, cultural differences and behaviour. For example, a fixed price consumer may not have a direct benefit of investing in an efficient technology. Actions of targeted consumer groups are necessary.

Key questions:

- Are there any key factors which make efficient appliances attractive to some consumers and less attractive to others?
- If so, how could those groups be encouraged?

Notes:

- Some workshop participants were doubtful over the differences between consumers – once people are made aware of energy efficiency, why it is important and options for efficient appliances, they care about the cost/benefit – regardless of wealth, education, etc. So, information about long-term cost benefits should be spread to everyone at all levels
- Government hostels for employees – The cost of electricity is often paid by the relevant ministry, meaning the residents may not be aware of the cost or usage. In some cases, the residents now pay. Each apartment should have a sub-meter, like in private apartment buildings.

Specific programmes could target the following groups:

- People who pay a fixed monthly price for their electricity based on number of appliances
- Geographic areas with very unreliable electricity supply
- People with low income
- People with high property value
- People who spend a large proportion of their household income on energy

Further research and analysis are necessary in order to propose more detailed action points in consumer heterogeneity.

List of workshop participants		
Name	Department/ Committee	Organization/ Institution
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#### Acknowledgement

The rapid policy response workshop was funded by UCL Public Policy and EPSRC impact acceleration fund.

