LIRNE*asia* recommendations on proposed DSM regulations 2013

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Our recommendations

- At the very least, ensure a coordinated survey design amongst the 5 distribution licensees.
- For high impact, utilize behavioral economics and Randomized Control Trials (RCTs) to overcome limitations of market research surveys
  - For even greater impact, scale up smart metering as soon as possible
- In the longer term, improve DSM efforts by spurring decentralized innovation through the public release of anonymized electricity data

We support the focus on DSM

- Until Norochchalai II is operational, we will not be able to effectively meet demand without DSM starting as soon as possible
- Our previous submission on the proposed electricity tariffs also highlighted the need for DSM in the medium term (~ 1 year)
  - http://lirneasia.net/2013/04/the-good-that-comes-from-public-hearings/
- DSM also means that consumers have to be persuaded to improve consumption efficiency and lower demand

Limitations of proposed market research: 5 market surveys can yield 5 different results!

- Not coordinating market surveys can result in different non-comparable results
- E.g. framing bias:
  - One survey asks "Would you use a Phillips CFL bulb if it can save you LKR 50 per month on your bill?"
  - Another asks "Would you pay an extra LKR 355 to purchase a Phillips CFL bulb instead of your tungsten bulb, if it will reduce your monthly bill by LKR 50"
  - **It is the same question, BUT likely to elicit different results because they are asked differently (i.e. framed differently)**

Limitations of proposed market research: people don't always do what they say they will do

- Quantitative surveys and qualitative methods are poor at predicting user preferences with experience goods
  - User's stated preference (i.e. what they say they will do) can often counter what would be obtained via revealed preference (i.e. what they actually do)
- For e.g. estimating the number of people who may switch to using a higher efficiency fridge
  - The wording of the question could introduce framing bias.
  - Even with careful questionnaire design, it is highly uncertain that people who said yes to switching, will actually do so.
- In fact, to change people's behavior we have to "nudge" them

How to achieve behavioral change: use behavioral economics + Randomized Control Trials (RCTs)

- What is behavioral economics?
  - A discipline that studies the effect of social, cognitive and emotional factors on the economic decisions of individuals
- What are RCTs?
  - The gold standard of scientific experimental research.
  - **Randomly** divides people into two **similar** groups, the treatment group and the control group.
  - Implement an initiative/ treatment on the treatment group
  - Do nothing with the control group
  - Compare the effects (i.e. changes in behavior) on the treatment group in relation to the control group

Why use behavioral economics + RCTs for DSM?

- Leveraging the lessons of behavioral economics and testing them in a Sri Lankan context via RCTs, reduces the chances of program waste from selecting the wrong technology/ initiative to include as part of the DSM.

Some possible RCTs in the current context: Example 1

- Show the cost of not purchasing higher efficiency electrical products RATHER than the potential savings from such purchase

- In one experiment try different options:
  - **Treatment group 1:** Print messages on their bills such as "By not switching to an energy saving fridge, you are losing Rs. XXX"
  - **Treatment group 2:** Print messages on their bills such as "By switching to an energy saving fridge, you can save Rs. XXX"
  - **Control group:** do nothing
- Try different messages each month to find out what works best.

Some possible RCTs in the current context: Example 2

- Inform people in their bills how their monthly electricity expenditure compares to the average cost of households similar to theirs

- Variations can be tried monthly to discover optimal message
  - e.g. in one month do not inform people whose usage is less than the average.
  - This allows for quick turnarounds in results allowing for multiple 'nudges' within a relatively short time frame

With smart metering you can improve savings potential from DSM even more

- Firstly, it enables time-of-day pricing
- The range of behavioral nudges that can be used also increase
  - E.g. send people SMS-es when peak time is about to start
  - E.g. based on their usage patterns, you can alert a consumer (by SMS) of unusual increases in energy usage.
  - Etc.
- With smart meters you can give actionable insights to consumers in real time
  - More immediate feedback can lead to faster behavioral change

Longer term: augment DSM with decentralized innovation

- Digitizing and making anonymized data on electricity usage public, can help DSM activities by encouraging decentralized innovation.
- Sri Lanka has a vibrant app development community that should be leveraged
  - E.g. creation of apps to provide consumers actionable insights on reducing energy usage and encouraging energy efficient behavior
- This is happening in Singapore right now as we speak:
  - http://www.upsingapore.com/e3hackathon/

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Some useful reading

- "Behavioral Science and Energy Policy" by Hunt Allcott and Sendhil Mullainathan
  - http://viget.opower.com/uploads/library/file/9/science_magazine_article_--_behavior_and_energy_policy__by_hunt_allcott_and_sendhil_mullainathan.pdf
- "Promoting competition in electricity retail: insights from behavioral economics" by Eugene Toh and Vivienne Low
  - https://www.ema.gov.sg/media/files/publications/Behavioural%20Economics%20n%20Policy%20Design-%20Examples%20from%20Singapore_Ch-05.pdf
- "Nudge: Improving Decisions About Health, Wealth, and Happiness" (book) by Richard Thaler and Cass Sunstein