

energy efficiency. They are stepping up insulation, which is good for health reasons and is good for longevity, by emphasizing and increasing the use of insulation. It could be beneficial to health there could be less heat shock there will be less cardiovascular diseases because of the heat shock, and Dr. Murakami and his colleagues are currently analyzing this. This is a non-entity benefit, so we must make it more obvious. If we could link it up with monetary benefits, this insulation of homes, especially for the existing buildings can be carried out and I think that is a possibility going forward. With that, if we could mix the Green Deal financial system into that system, then I am sure that it could contribute to greater energy saving and also great health benefits to the people.

Conclusions

- (1) We defined the five kinds of green innovations and the three types of green growths, focusing on the type 1 green growth, which decreases $\frac{CO_2}{GDP}$ in the residential sector, promoting dissemination of energy saving electric appliances, renewable energy technologies and so on.**

- (2) We proposed the concept of GPM to promote the type 1 green growth and the several schemes to realize its functions. We need to design some new institutions such as the Green Deal so as to activate GPM.**

- (3) We quantitatively evaluated the type 1 green growth using our energy economy model. The computed results indicated that the type 1 green growth make high effects on households.**

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Those are the things that we are thinking. We would like to cross over various ministries and other administrative bodies to create a new Japanese version of the Green Deal. Thank you very much.

Q&A session

Question: I have a question for Mr. Morikawa of METI. With regard to the profitability of the energy conservation measures, I believe that you are considering IRR (internal rate of return). But the rate of discount can have strong impact on the net present value. What kind of discount rate do you use, and would you explain how did you choose it? For example, I heard that SMEs can replace the boilers to the efficient ones because of short payback time.

Morikawa: Thank you very much for your question. I myself am not in charge of energy conservation policies, which really does not qualify me to give an answer about the question on discount rate.

Suppose that SME is considering replacement of a boiler. How do they decide if they will replace or not regarding payback period? They first have to purchase a boiler, and for them to purchase a higher performance

boiler they will first have to calculate the expected savings on energy costs after the introduction of the new one. The payback period can then be calculated by dividing the total cost by the estimated reduction cost and that usually leads to an answer of 6 to 7 years for the payback period. That is the reason that many SMEs have introduced new boilers. But for LED and other measures, the amount of expected energy savings is rather limited, making the payback period longer, sometimes up to 10 years. That is how we calculate. In the J-Credit scheme, we don't push certain measures, such as LED and boiler replacement, but we accept any measures that would have payback period of more than 3 years.

Takase: Alan and Jonathan, do you have any comments or questions on Japanese policies and LCS proposals based on the presentations by the Japanese participants?

Alan Clifford: I'm Alan from DECC. It was incredibly interesting to listen to those presentations and lots of parallels with what we've done in the UK in terms of the energy assessments, in terms of the smart metering etc. and that sort of process. In fact it seems that a lot of the things that you've got potentially coming up are much more sophisticated than what we have in the UK, and more sophisticated than what we've had available to us for the Green Deal which will hopefully make your lives easier in developing such a policy, especially with things like the HEMs and the real time information that you think you can get from individual homes to assessor savings. I think we'd be incredibly interested to learn more about how you might be doing that sort of thing. One of the things that struck me though is that we've been unable to include appliances and gadgets in the UK's Green Deal policies, in fact in any of our policies. This is largely because they can be taken away from the home quite easily, especially because people move house in the UK more often and move out of rented accommodation. Is that something that you've considered in Japan as well in those policies and is that an issue here as well? How would you cope with that?

Jonathan Harley: I'll just add a couple of points. I agree with Alan. It's very interesting and some of the ideas are more sophisticated and you've probably learned from the way we've done things too, what areas you could make things better. There were two points that really interested me. One was about the use of a website tool to do the assessment. It's something that we are looking at now, to make the customer journey easier. I think that's a good idea and I think that is something that customers will really respond to. We have had feedback from customers to say there are too many visits, there's too long a time spent assessing, it's too complicated or it's too expensive. By making that automated and putting that online, that's really going to engage people, especially if you get the kind of results, the clarity, so quickly. I think that's going to really benefit consumers very quickly so I'd advocate going down that route. The second point is really a challenge, I think, in relation to making the changes in coordination with market liberalization. One of the great benefits of liberalization is central governance, moving the market forward together. My advice would be to bring multi-regional electricity companies together and have one integrated approach and integrate that approach with liberalization as well. One of the huge advantages you've got here is the ability to do it together, rather than implement things at different stages so I think it's a huge opportunity.

Takase: Thank you very much. Now, I would like to give the microphone to Ms. Masuda.

Masuda: With regard to Mr. Clifford's question, he asked about the frequency of moving, and timing of replacing the equipment. When we carry out this household energy assessment, those are the things that we take into consideration. When people have major life events, the interest in assessing their energy situation comes up, for example when people become independent and they move out of their parents' house, when they land a job, when they marry, when they have children, when children leave their homes and when the parents are left in their homes. In each of these stages there will be an opportunity for the people to review if they should replace their electric appliances, and also the way they live. These can be points where electronics retail stores, or furniture makers, or builders are asked for their advice. Therefore, it is important that we provide information to such stores and makers and builders.

You say that smart meters in Japan must be sophisticated, but my personal impression is that the smart meter is yet to be deployed in Japan. HEMSs are yet to be deployed in many households. We carried out survey last year, to see, if the household with HEMS system will be successful in reducing their energy consumption after they get Home Energy Assessment. But this does not necessarily show the true differences because it is difficult to identify the baseline. So analyses may be difficult in such cases. That is my impression.

Morikawa: In Alan's question, there was a comment related to the frequency of moving in Japan. I think that is one important point, where the Green Deal loans in the UK are attached to the houses, not to the occupants. Long-life housing structures are available in the market and when the house is re-occupied by someone else, the new occupant then takes over the Green Deal costs of the previous occupant. For this system to work, the UK has amended its law so that the loans are attached to the houses, not to the occupants. Whether or not this system is available or possible in Japan, I don't have an answer to that question. Whether that system can be replicated here, I am unsure. As mentioned, the Japanese housing structure tends to last for a shorter period of time, therefore, we are starting, from electric appliances that is easier to deal with. In the future we are hoping, as has been discussed by the presenter from MLIT, to promote longer life housing structures for which we look forward to taking advantage of the UK experience. The very unique loans that are attached to the house may be used but for the time being, this is a challenge on the part of the government and administration so we really have to listen to people's opinions and we also look forward to learning from the British experience as well.

Also, regarding electricity market reforms and coordination of power companies in different regions, the future of the electricity market reform is yet to be clearly seen in the longer-term future. At this point in time, the ten regional power companies in Japan are having a very limited degree of coordination in their operation. In promoting renewable resources in the coming years, we really have to discuss how to, or if these ten companies need to be working more closely together. Maybe this is an issue slightly different from the issue of Green Deal policy promotion but this is a very important area that Japan should keep an eye on and thank you very much for your input.

Question: I have a question to Prof. Matsuhashi. I'm very interested in the point that you are taking limited rationality in to account when building a model. When measuring the level, or the type of limited rationality using actual data, I guess there will be characteristics by household, by region, by age, by type of household, etc. My question is that, when you would consider limited rationality into the economic model such as CGE model,

would you consider regional differences? This is a technical question, but I would like to know your plan for your model studies.

Matsuhashi: Thank you very much for your question. What we are aiming for, finally, is to think about the regional differences and individual people's differences. They should be taken into consideration in evaluation. However, we cannot use this as a model to evaluate Japan as a whole, because as a model it might not be efficient. So how we make this consistent is something that we are trying to address, but of course the computing capacity of computers is upgrading so we want as much as possible to see the difference in consumption propensity for individuals, and we want to create individual models for usage, so we want structure, we want to have such modelling and such structures.

Question: I have a question for the two British speakers. When I read the reports by assessors I got the impression that much of the assessment appraisals are being conducted free of charge. When these costs are very high maybe that will be too expensive an investment for the users, but this can possibly be made much less expensive if you can successfully programize these services.

Alan Clifford: Thanks very much for the question, and the assessment costs are actually determined by the assessors, the actual organizations, and so that can range from something like 100 pounds, or 80 pounds up to 150 pounds, depending on the nature of the property and that can clearly be a barrier, and that is why I agree with Jonathan's remark earlier that if we can find ways to reduce that cost, we're very keen to do that and we are looking at the possibilities online, a sort of digital customer journey or at least moving parts of the assessment in that way. I think there will inevitably be some aspects that can never go fully digital because you need to be able to go to the property to measure it up and to understand it as a surveyor, but that's only one part of the assessment so we think there is scope to do that and we are looking at that.

But at the moment we are finding that a lot of assessments are being offered for free or at least refunded after installation to encourage people to take up measures and some of our schemes are for the initial stages of the Green Deal such as the cash back scheme, and this means the customers know that if they are going to take up the measures they are going to get some money back that will more than cover the cost of the assessment. I'm not sure if that answers the question?

Jonathan Harley: As Alan said, it's a challenge We need to face it looking at what is right for the consumer in terms of cost and time and multiple visits, but we also have created a market where we have over 3,000 advisors who are highly skilled surveyors who have gone through qualifications, who want to see a return on investment and I don't think that for some customers the need for a home visit is always going to happen because of the nature of insulations and the costs of insulations in a home. So we are working on a compromise for the right customer in the right circumstances but also what is right for the assessors and the skilled individuals who make the assessments on property. It's a difficult challenge but we are spending a lot of time facing it at the moment.

Takase: My question to Ms. Masuda is for the whole household assessment. Who pays for this?

Masuda: Thank you very much. For the household assessment, for the past three years, this was a model operation commissioned by the government so the cost was paid by the government, but when private companies carry out assessments, this is actually a business operation, so in some cases we are not paying for everything. From next year, this is going to be subsidized projects so we will have to solicit those assessor organizations and there should be negotiations between the assessor organizations and the assesses so there could be some partial subsidies carried out for that.

Miyamori: Thank you. I have a question for Alan and Jonathan. Your presentations were very interesting. Two gentlemen are now thinking about using the Green Deal scheme for their homes, but when you are seeing all those ROIs, maybe you can just borrow some money from banks and pay back those loans without necessarily using the Green Deal. Why do you think you will be using the Green Deal and what are the reasons for the Green Deal finance to have an interest as high as 7%? Are there any specific reasons? And you mentioned that those investments are attached to the houses, not to the users but Japan is facing an ageing society so there is a risk of empty homes as well, as well as disaster risks, and solid walls will be more expensive to be insulated. How do you plan to promote those investments with some risks when it is impossible to recover the investment?

Jonathan Harley: There were maybe two or three questions in there so I will try and start with the first question. In terms of why I would make a decision to take Green Deal finance rather than personal finance, it's not upfront costs are so attractive in terms of the Green Deal because it's very difficult for most people to find money to make improvements to their property, especially after they buy the property. The cost of life in the 21st century is high without having to spend any spare savings on insulating your home so that is a great attraction. It suits different demographics more than it does others, and I talked briefly about what kind of demographics it suits and personally I think I fall into that demographic. You asked a question about finance as well and why the interest rate is so high in comparison to the interest rate that we currently have in the UK and you have in Japan. Alan mentioned it earlier in relation to the fact that at least half the population can't get credit in terms of loans or mortgages so this opens up the opportunity for those who can't, being eligible for the energy company obligation from those on very low incomes to those on very high incomes who can afford to pay for the measures up front and that is why it's so attractive. As an interest rate, it's a lot more attractive than credit card interest rates or any other unsecured loans. What we will work hard to do collectively, as an industry, is increase competition, decrease costs and look to put profits that the finance company makes back into reducing the interest rate, to make it more attractive for consumers. But as a starting point, if it allows consumers to have a net benefit on their energy bills then it is worthwhile.

Takase: Thank you very much. Well I am sure you still have more questions to ask but we are already out of time, but this room is available until about 6pm and Mr. Clifford and Mr. Harley will be both staying in Japan tonight so if you have any additional questions I think they would personally be willing to answer. Well, thank you very much for taking part in the long hours of this workshop. Thank you very much for your valuable presentations. We would like to continue such proposals and also verification tests will be conducted, so please give us your opinions to our endeavor. So thank you very much for your participation today.