



**JYUKANKYO RESEARCH
INSTITUTE INC.**

BECC 2016 Conference

Home Energy Report Pilot: Large-scale look at consumer behavior in Japan

21 October 2016

Renaissance Baltimore Harborplace Hotel

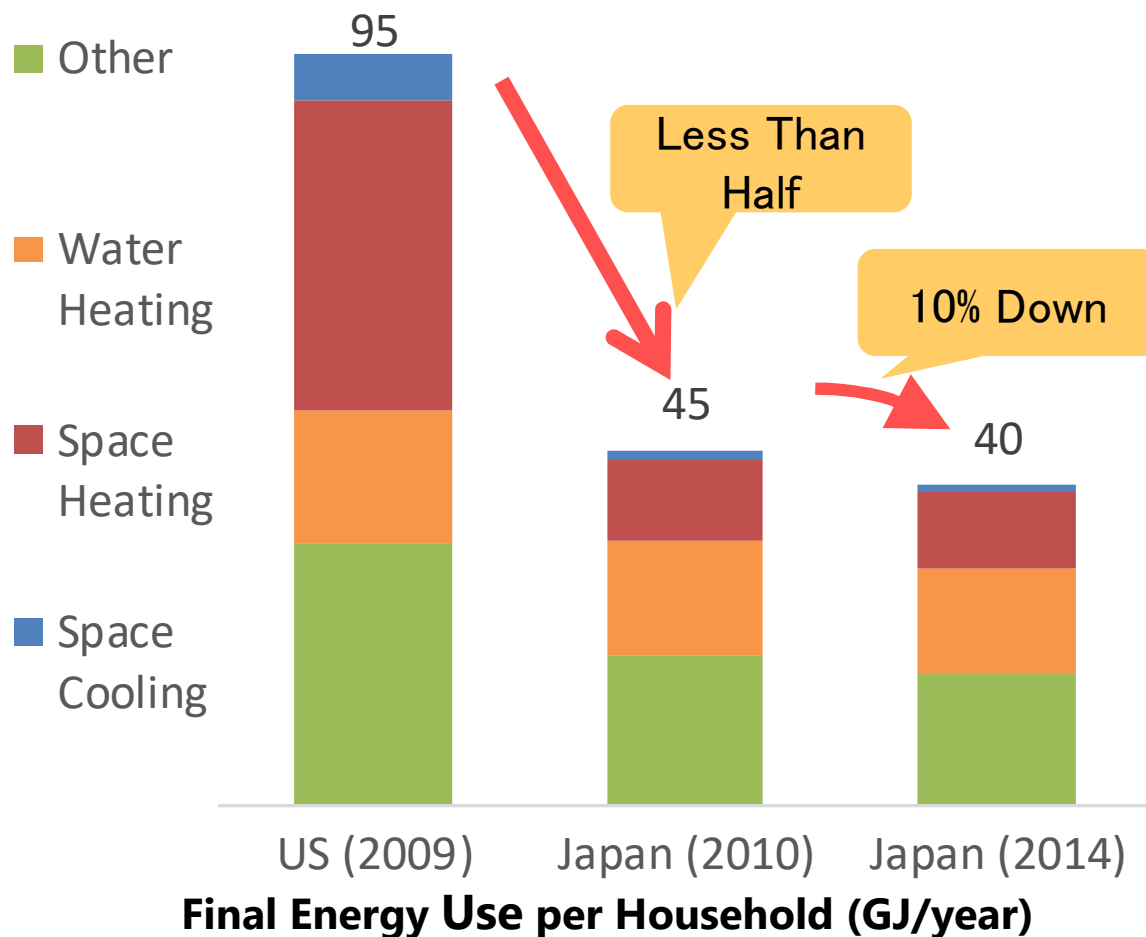
Sho Hirayama

Jyukankyo Research Institute Inc.

Residential Energy Consumption in Japan



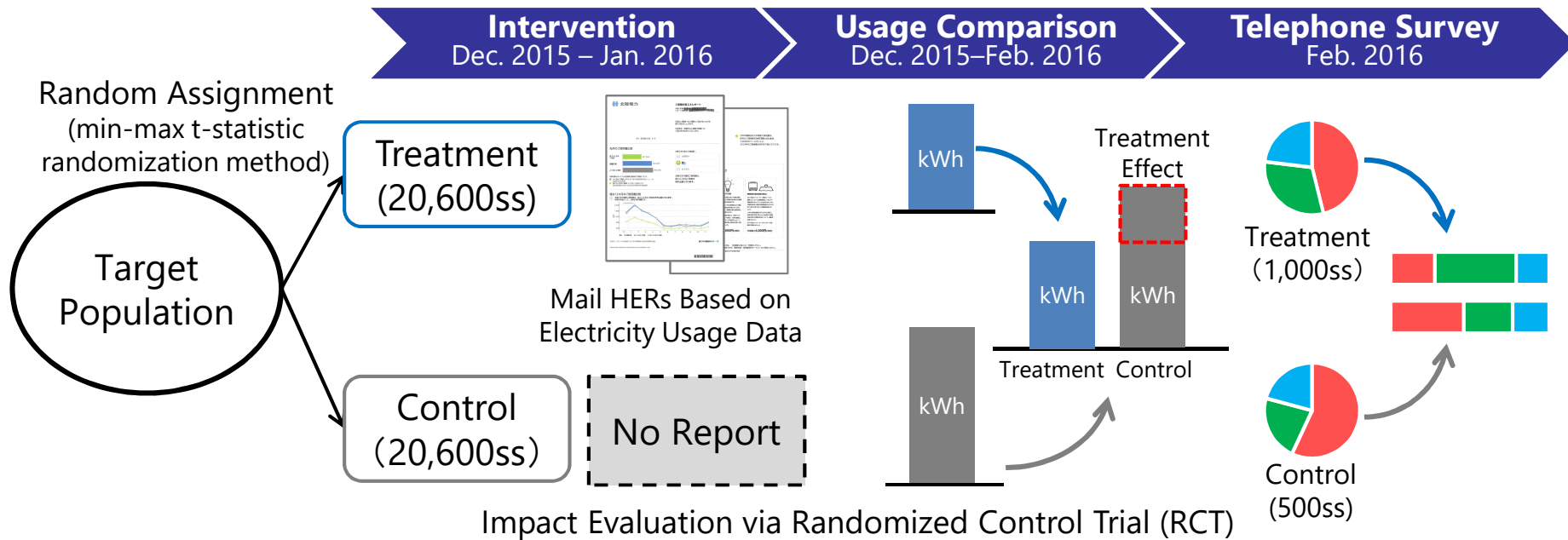
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- Japanese household use less than half of energy compare to US in 2010.
- After Fukushima accident, that decreased by 10% via voluntary consumer behaviors.
- Is Home Energy Report (HER) still effective even in Japan?

(Source) U.S. Energy Information Administration, Residential Energy Consumption Survey.
Japan: Jyukankyo Research Institute Inc., "Residential Energy Statistics Yearbook"

Outline of the Study



- ① 41,200 households were randomly assigned to treatment and control groups.
- ② HERs were mailed twice to the treatment group during winter.
- ③ Saving impact was analyzed by comparing electricity usage across both groups.
- ④ EE awareness and behaviors were measured via a phone survey.

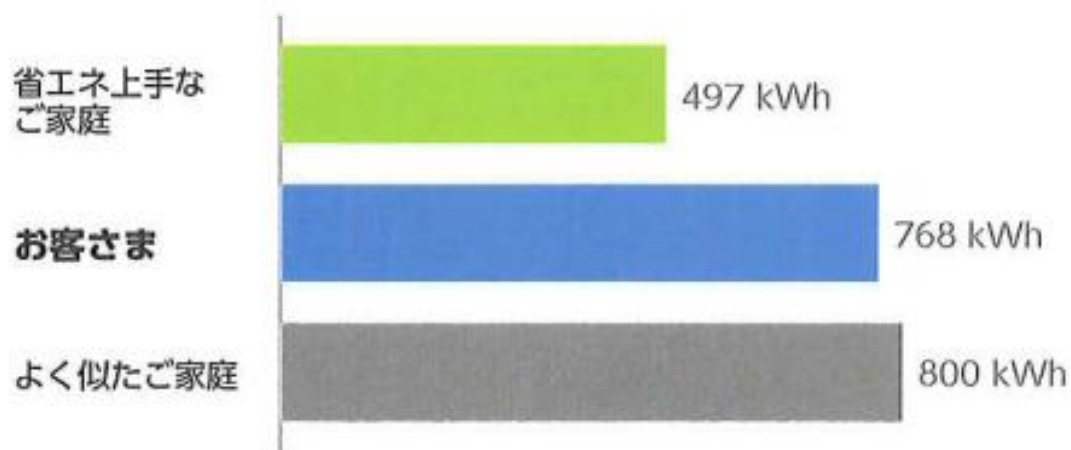
Neighbor Comparison in Japanese Version HER



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Mostly same as US,
smiley faces are
modified

先月のご使用量比較



比較対象となっている北陸電力管内のご家庭について

- よく似たご家庭: お客さまと同じ契約容量/料金メニューの近隣の約100世帯
- 省エネ上手なご家庭: よく似たご家庭のうち、電気使用量の少ない上位20%の世帯の平均使用量

お客さまの省エネ達成度:

	大変良い
	<u>良い</u>
	もう少し

お客さまの電気ご使用量は、
省エネ上手なご家庭を
55%上回っています。

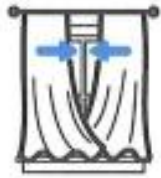
Energy Efficiency Tips Used in Hokuriku Pilot



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6 tips are selected for Hokuriku's winter

お客さまに合った省エネのコツ



冬はカーテンで冷気を遮断

家の窓やドアは、室内の熱が室外に逃げる原因になっています。標準的な住宅では、冬の暖房時の熱損失の半分近くがドアや窓といった開口部を通じて生じます。

カーテンを閉めて外の冷気が入るのを防ぐと、暖房効率が上がり省エネになります。厚手のカーテンを使い、カーテンの下端が床に接するように取り付けると効果的です。ただし、日差しが強い午前9時から午後3時までの間は、南向きの窓のカーテンを開けると熱を取り入れることができます。

年間最大**1,000円**の節約



省エネ型のランプに交換

同じ明るさで比べた場合、省エネ性能に優れた電球形蛍光ランプの電気代は従来の白熱電球の1/4以下、寿命は約6倍です。

また電球形LEDランプは白熱電球と比べ電気代は1/5以下、寿命は約40倍となっており、価格は割高ですが、消費電力量と製品寿命と併せて考えるとお得なのです。

省エネ型ランプの購入時には、口金サイズ・ランプサイズ・ランプの重さ・光色も確認し、照明器具に合ったランプを選びましょう。リビングなど点灯時間が長い場所ほど省エネ型ランプに交換しましょう。

年間最大**2,000円**の節約



暖房器具の設定温度を低めに

ガス・石油ファンヒーター、電気カーペット、電気こたつといった暖房器具は、エネルギー消費効率ではエアコンより劣るものの、その分使用を控えた場合の節電効果が大きくなります。使い方を工夫して光熱費を節約しましょう。

いずれも設定温度は20℃か[中]に設定し、必要な時だけ使いましょう。お出掛けや就寝の前は早めに電源を切るか、タイマー機能を活用しましょう。

ガス・石油ファンヒーターのフィルターを定期的に掃除しましょう。

年間最大**4,000円**の節約



A modern Japanese kotatsu

(Source) <http://en.wikipedia.org/wiki/File:Kotatsu-tastefulTN.jpg>

Close window shades to prevent cold air

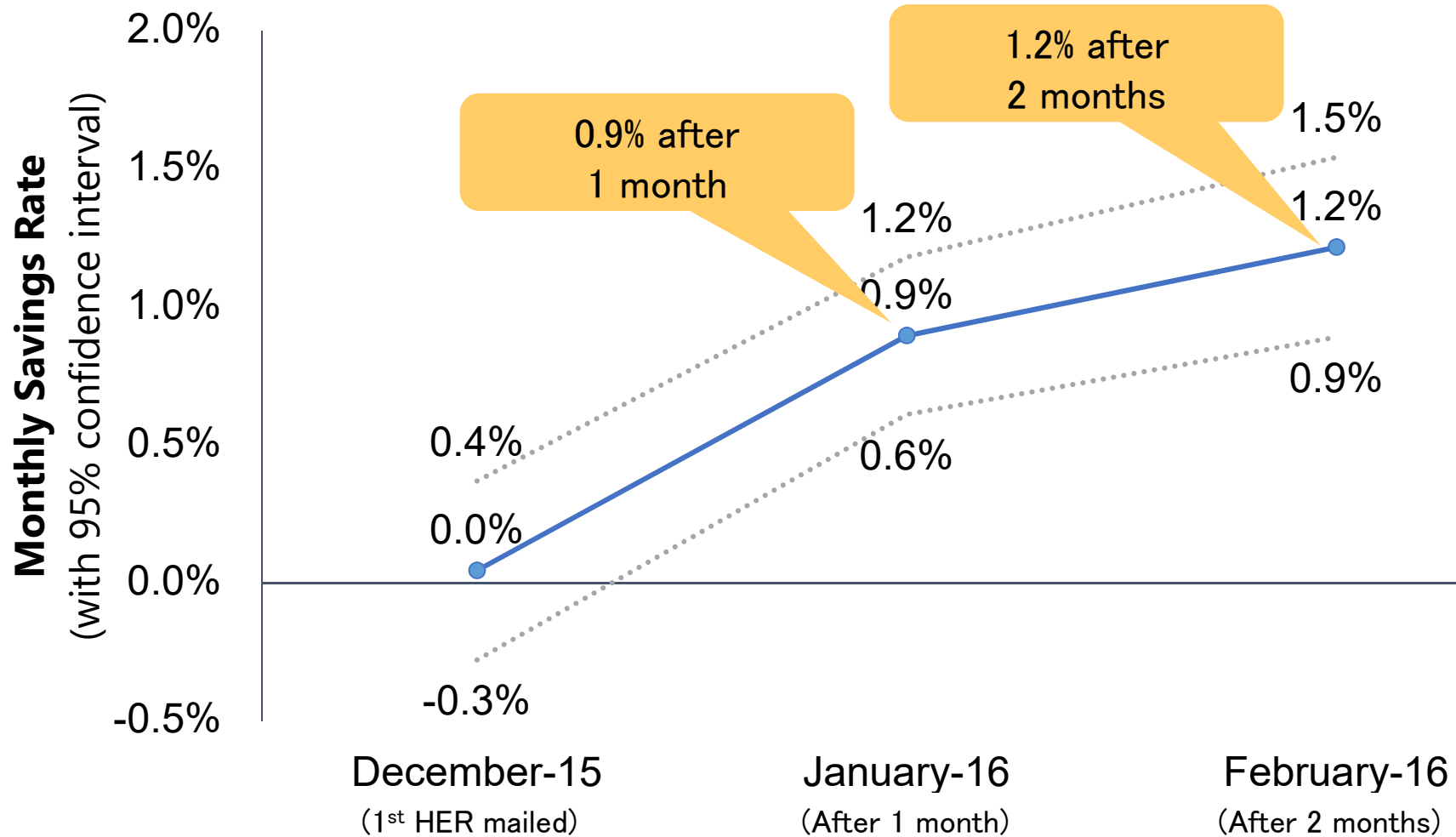
Use energy-efficient light bulbs

Set the temperature of heating appliances relatively low

Estimated Program Savings Impact



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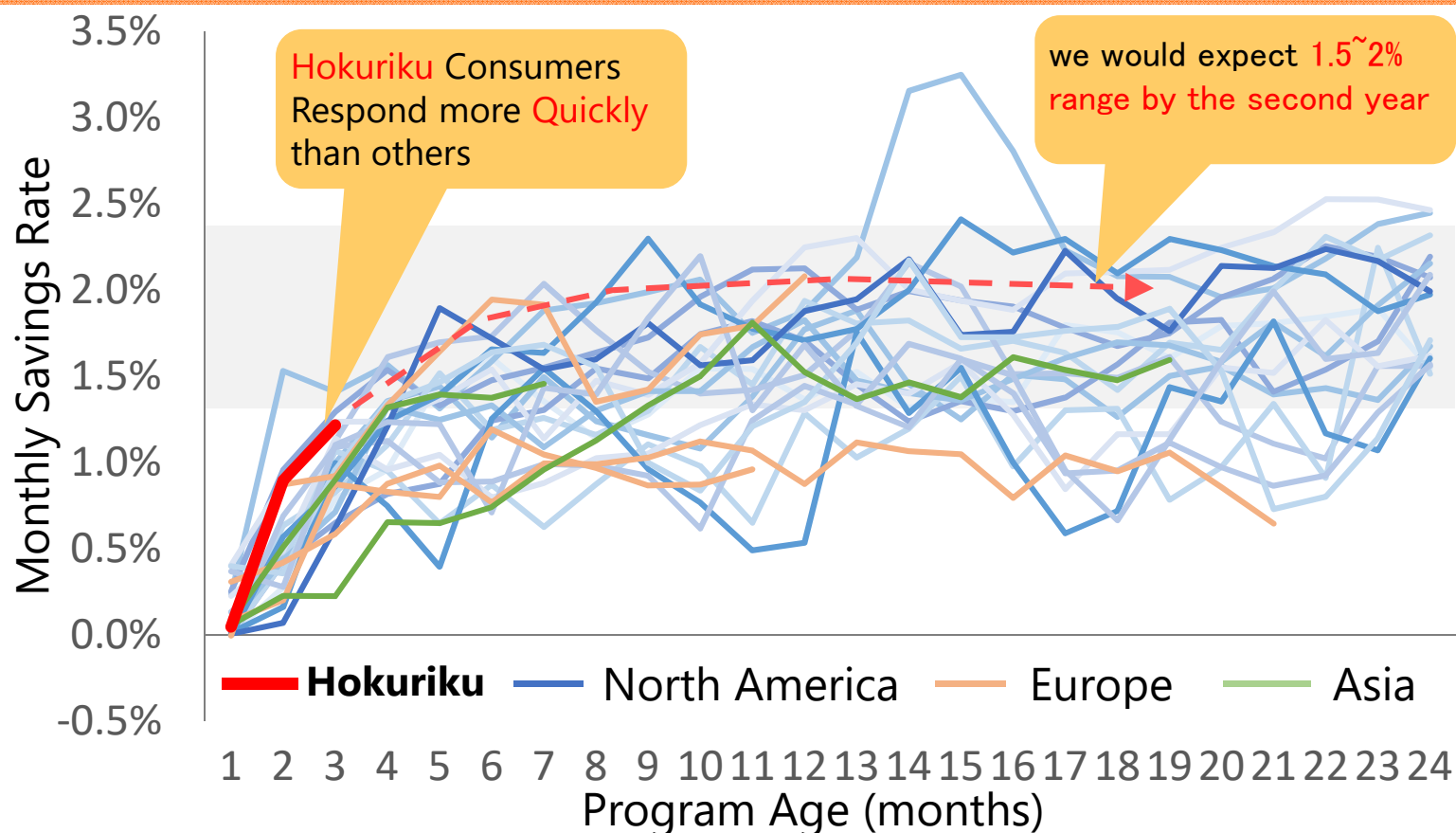


Note: Monthly Savings Rate (%) = Decrease rate of Treatment group's electricity usage compare to control group calculated via Panel Data Regression Analysis.

Comparison of EE impact in Hokuriku with Other Opower's programs



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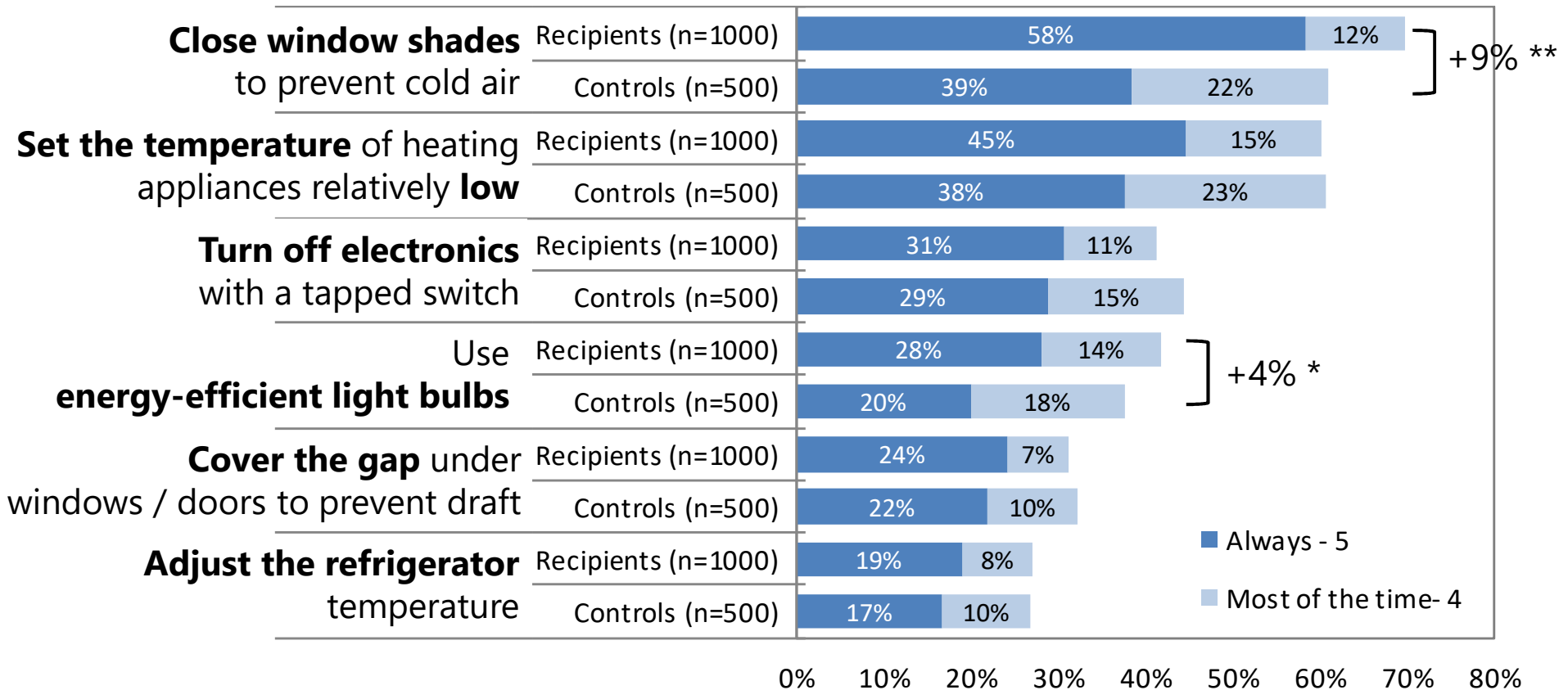


- Hokuriku consumers **respond more quickly than other programs.**
- If the program were to continue, we would expect steady savings in at least the **1.5~2% range by the second year.**



Energy Efficiency Behaviors' Frequency

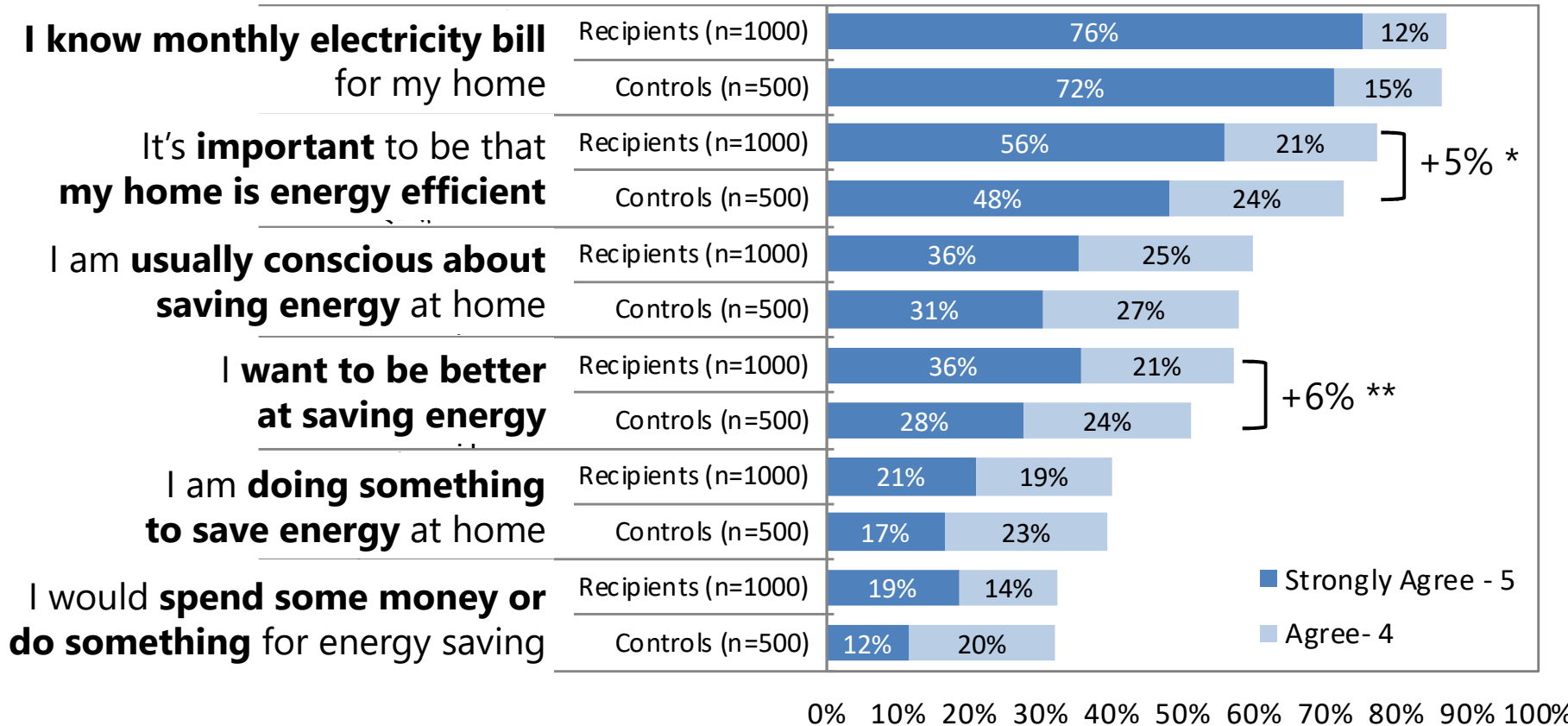
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- HERs Recipients have a **high frequency of all EE Behaviors** compared to Controls.



Energy Efficiency Attitudes



- HERs Recipients **strongly agreed to all EE Attitudes** compared to Controls.
- HERs improved the frequency of EE behaviors and Attitudes.

Conclusions & Recommendations



- **Conclusions**

- HERs recipients (treatment group) lowered their usage 1.2% on average compared to control group.
- HERs improved the frequency of EE Behaviors & EE attitudes.

- **Future Issues**

- Continued Measurement of Long-Term Impact of Behavioral EE Programs.
- Evaluating Impact in other parts of Japan and other seasons.

Thank you!

Acknowledgment



- This study (“2015 Research Report on the Effects of Energy-Usage Information Provision on Residential Behavioral Energy Efficiency”) was commissioned by the Japanese Ministry of Economy, Trade & Industry (METI) and carried out jointly by Jyukankyo Research Institute, Inc., Opower Japan, and Hokuriku Electric Power Company.
- The full report (Japanese) can be found here:
http://www.meti.go.jp/meti_lib/report/2016fy/000233.pdf