



JYUKANKYO RESEARCH
INSTITUTE INC.

The Worst Electricity Crisis Ever: How Tokyo Cut Its Electricity Use 15%

2011 Behavior, Energy and Climate Change Conference
1 December 2011, Hyatt Regency Washington on Capitol Hill

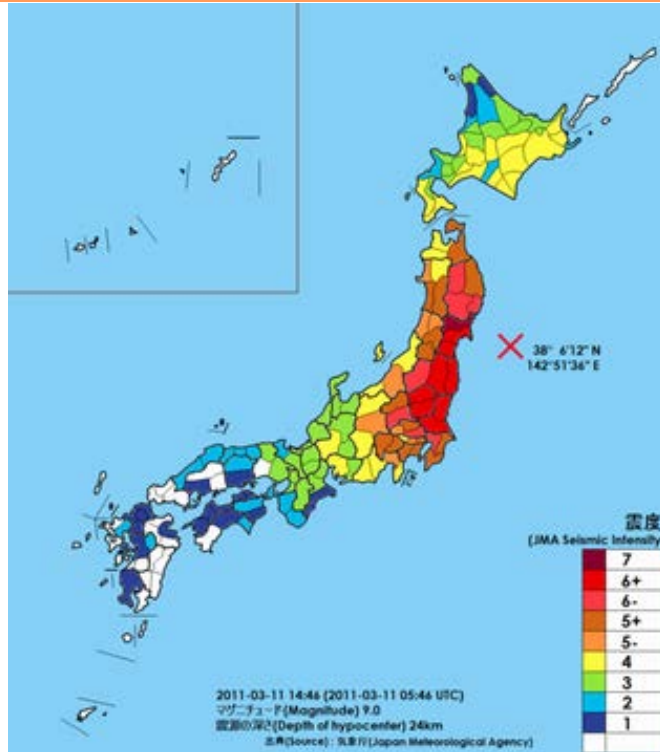
Sho Hirayama

Jyukankyo Research Institute Inc.

Introduction



JYUKANKYO RESEARCH INSTITUTE INC.



(source) http://en.wikipedia.org/wiki/File:Shindomap_2011-03-11_Tohoku_earthquake.png,
<http://en.wikipedia.org/wiki/File:SendaiAirportMarch16.jpg>

- **11 March: 2011 Tōhoku earthquake and tsunami**

- Great electricity crisis caused by the earthquake and nuclear accidents
- 25% power shortage in Spring, 10% shortage in Summer in Tokyo
- **Social environment and householders' Behaviors Changes in Tokyo**

- Electricity Saving in Household
 - Spring: 11%
 - Summer: 17%
- 90% of households raised their electricity saving awareness
- Behavior Changes
 - Heating, Cooling, Lightings, etc...
- What changed their behaviors?
 - Social Environment
 - Provision of information



(source) Rambalac, Tokyo tower without illumination because of electricity saving after earthquake 2011-03-11, WIKIMEDIA COMMONS

Table of contents



1. Introduction
2. Outline
3. Electricity crisis and Behavior Change in Spring
 - A brief background about Spring 2011
 - Saving Effect in household
 - Awareness and Behavior Change after the quake
4. Electricity crisis and Behavior Change in Summer
 - A brief background about Summer 2011
 - Behavior Change in Summer-time
5. Future Issues

A brief background about Spring 2011 in Tokyo



JYUKANKYO RESEARCH INSTITUTE INC.



(source) http://upload.wikimedia.org/wikipedia/commons/0/01/Narashino%2C_Chiba%2Cblackout20110315.JPG

- After the 3.11 disaster
 - TEPCO's Service Area: 25% power shortage
 - Rolling Blackouts: Started on 14 March and continued for 2 weeks
 - Voluntary urgent power saving actions were taken by the consumers

Japanese buzzword “Setsuden”



JYUKANKYO RESEARCH INSTITUTE INC.

Web Search Interest: 節電

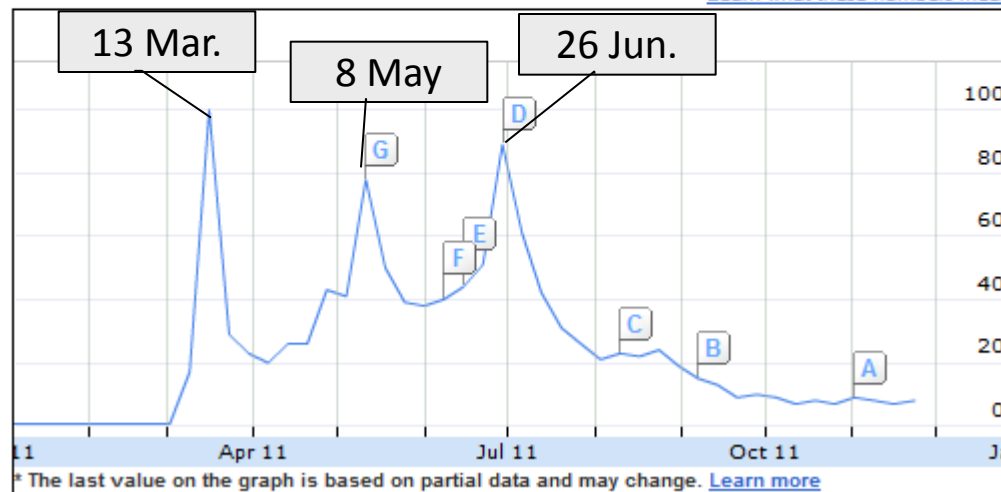
Worldwide, 2011

Categories: [Computers & Electronics \(10-25%\)](#), [Industries \(10-25%\)](#), [Home &](#)

⚠ An improvement to our geographical assignment was applied retroactively from 1/1/2

Interest over time

[Learn what these numbers mean](#)



* The last value on the graph is based on partial data and may change. [Learn more](#)

[+ Google](#) [Embed this chart](#)

(source) <http://www.google.com/insights/search/>



(source) <http://setsuden.tumblr.com/>

- Setsuden = Saving Electricity or Saving Power
- Social awareness on Electricity Saving has changed completely 5

Outline of the Survey



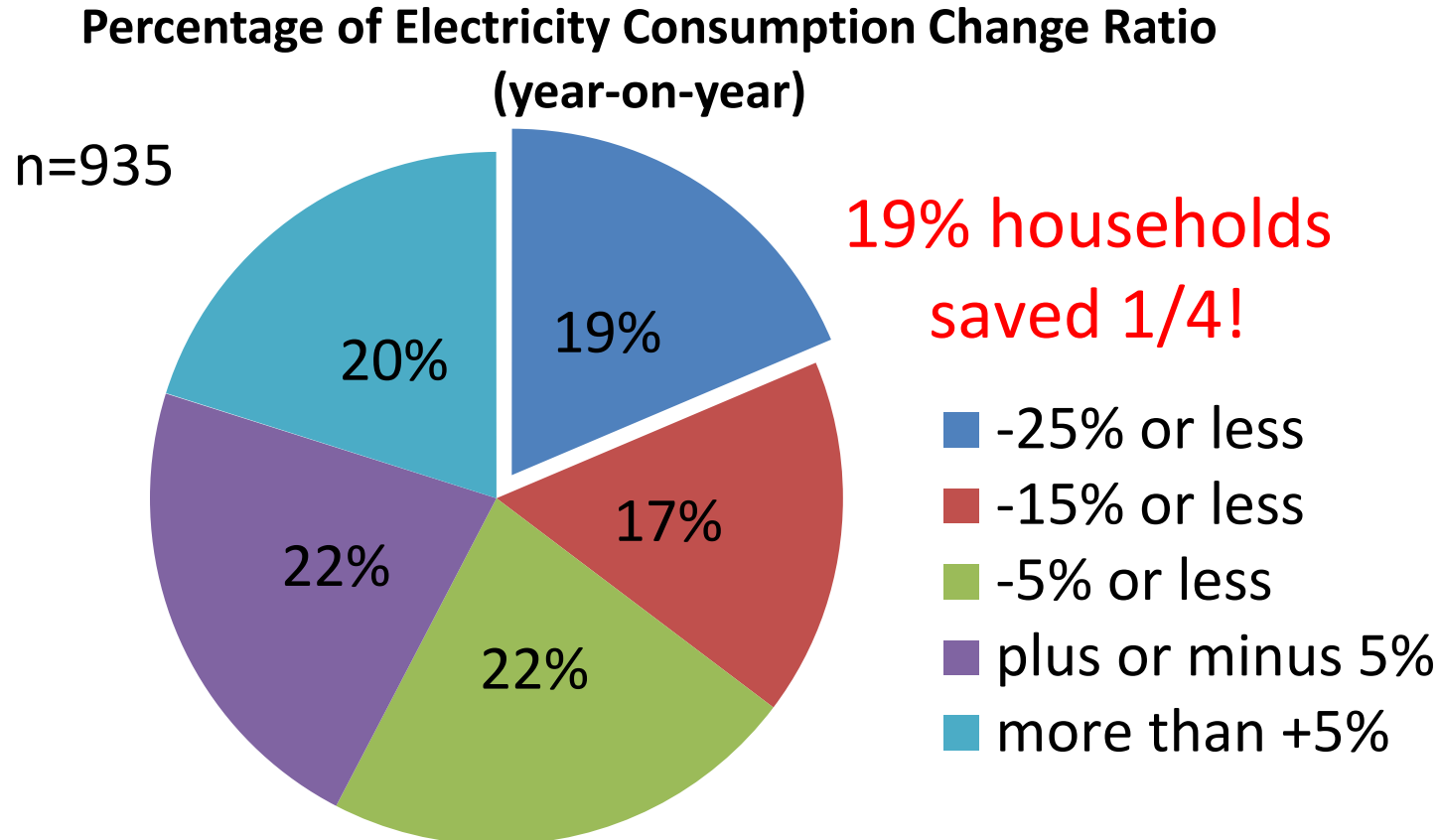
JYUKANKYO RESEARCH INSTITUTE INC.

Survey Title	Study on Electricity Saving and Behavior Change after 2011 Tōhoku earthquake
Method	Internet questionnaire survey
Period	April 2011
Target	People living in TEPCO's coverage area
Number of Samples	1120 households
Surveyed Items	<ul style="list-style-type: none">• Household type (including response's age, sex, family members, building type and floor space)• Electricity consumption (electricity usage, bill, days, from Mar. to Apr. in 2010 and 2011)• People's awareness about Electricity Saving• Behavior Changes after 3.11

Electricity Savings in April 2011



JYUKANKYO RESEARCH INSTITUTE INC.



* Adjusted value with heating degree day

(source) Jyukankyo Research Institute, "Study on Electricity Saving and Behavior Change after 2011 Tōhoku earthquake", April 2011

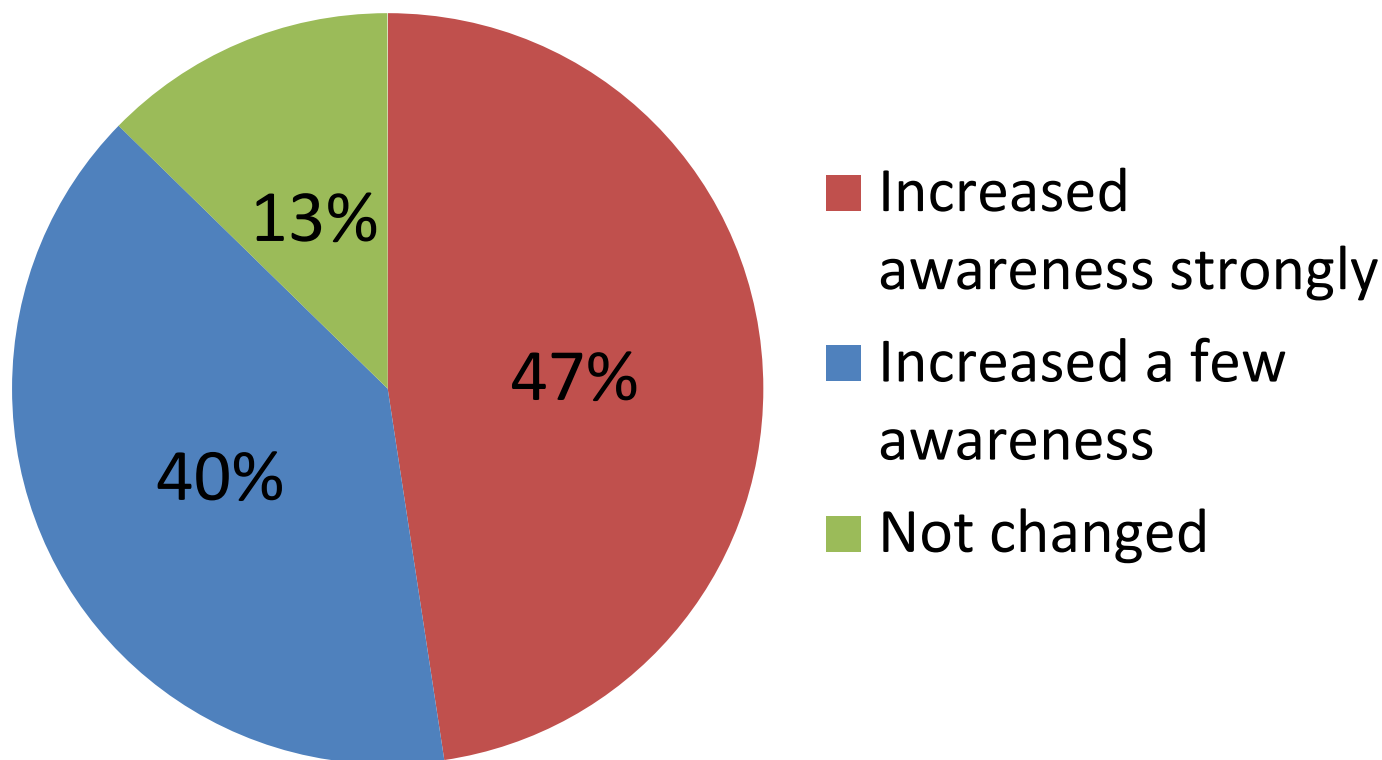
- Average saving rate was 10% compared to April 2010
- 19% of households cut their electricity use by up to 25%

Awareness about Electricity Saving



JYUKANKYO RESEARCH INSTITUTE INC.

Change of awareness about Electricity Saving



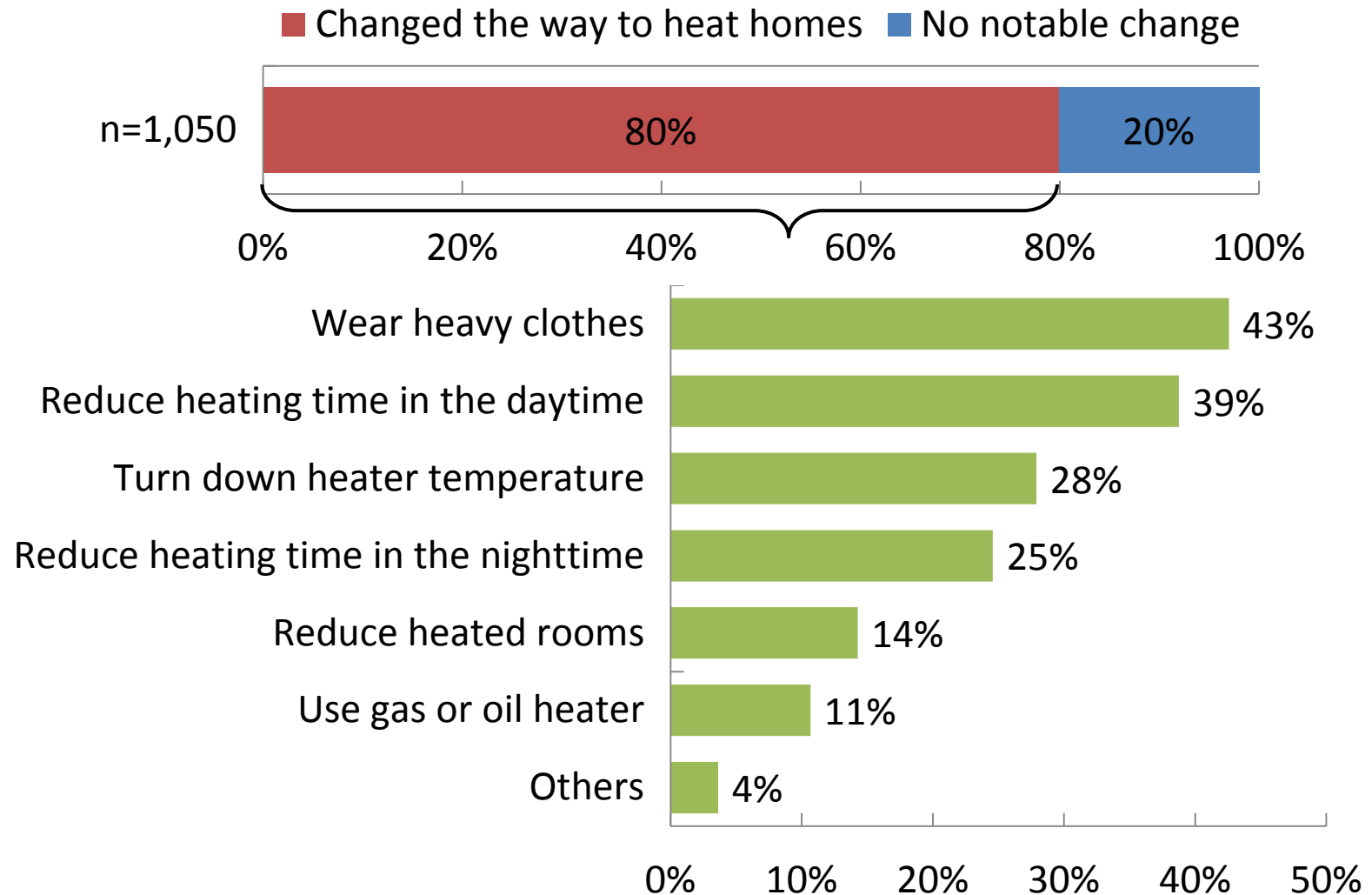
(source) Jyukankyo Research Institute, "Study on Electricity Saving and Behavior Change after 2011 Tōhoku earthquake", April 2011

- Most of the respondents changed their mind after 3.11

Behavior Changes about space heating



JYUKANKYO RESEARCH INSTITUTE INC.



- Most respondents (80%) changed the way to heat their homes 9

Behavior Changes about lighting and appliances



JYUKANKYO RESEARCH INSTITUTE INC.

■ Addressed after 3.11 ■ Addressed before 3.11 ■ Not addressed



Unplug devices when not in use



Turn off lights when not needed



Reduce daily TV hours



Turn down electric toilet seats' temperature



Reduce the number of lamps



Reduce lighted rooms



Turn off all lights in daytime

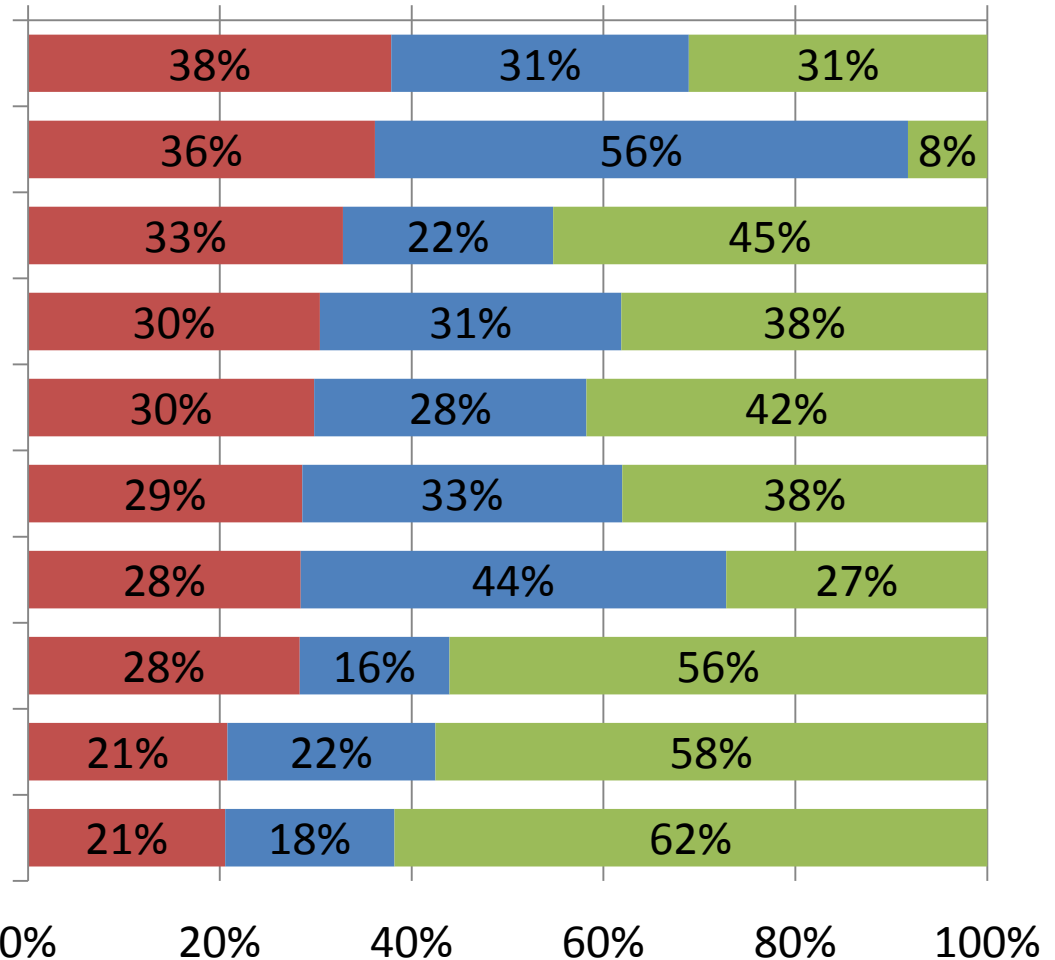


Reduce lighting hours

Stop using humidifier



Stop using electric toilet seats



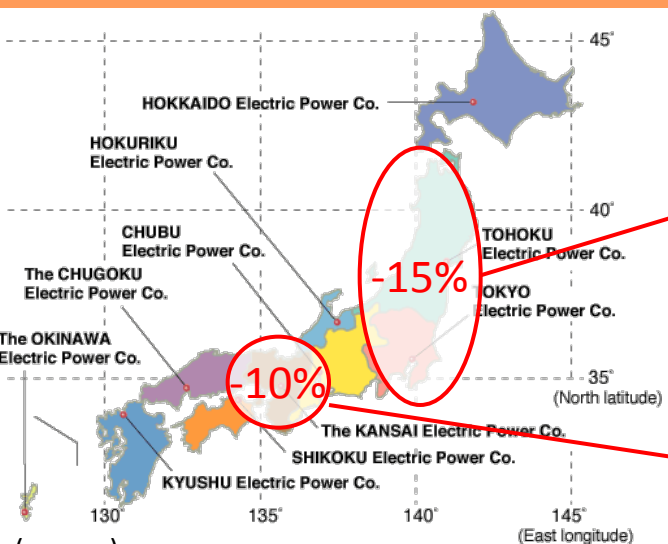
(source) Jyukankyo Research Institute, "Study on Electricity Saving and Behavior Change after 2011 Tōhoku earthquake", April 2011

- Many measures concerning lighting actions were taken

A brief background about Summer 2011



JYUKANKYO RESEARCH INSTITUTE INC.



(source)
http://www.fepec.or.jp/english/about_us/service_areas/index.html

Electric Company	Sector	Electricity Saving target	Restriction of Electricity Use	Support for small customers
Tokyo and Tohoku	Industrial	15%	$\geq 500\text{kW}$	Provision of measures, Explanatory meetings of electricity saving, Electricity saving portal site, Electricity Forecast,
	Commercial	15%	$\geq 500\text{kW}$	
	Residential	15%		
Kansai	Industrial	10%		
	Commercial	10%		
	Residential	10%		

- Electricity crisis in summer 2011
 - 10% shortage in Tokyo area and 7% shortage in Tohoku area
 - Power shortage in other area due to inspections of nuclear plants
- The government announced the Restriction of Electricity Use
 - Large electricity customers' power use shall be 15% reduced from 2010

Electricity Saving Actions and Campaigns



JYUKANKYO RESEARCH INSTITUTE INC.

家庭の節電対策メニュー

ご家庭で取りくむ対策をチェックし、「我が家の節電対策」を作りましょう。

取りくんでいたきたい節電対策メニュー	削減率	削減消費電力
1 室温28℃を心がけましょう。	10%	130w
2 “すだれ”や“よしず”などで窓からの日差しを和らげましょう(エアコンの節電になります)。	10%	120w
3 無理のない範囲でエアコンを消して、扇風機を使いましょう。	50%	600w
4 冷蔵庫の設定を「強」から「中」に変え、扉を開ける時間をできるだけ減らし、食品をつめこまないようにしましょう。	2%	25w
5 日中は照明を消して、夜間も照明をできるだけ減らしましょう。	5%	60w
6 省エネモードに設定するとともに画面の輝度を下げ、必要な時以外は消しましょう。	2%	25w
7 便座保温・温水のオフ機能、タイマー節電機能があれば、これらを利用しましょう。	いずれかの対策により	5w
8 上記の機能がなければコンセントからプラグを抜いておきましょう。		
9 早朝にタイマー機能で1日分まとめて炊いて、冷蔵庫に保存しましょう。	2%	25w
10 リモコンの電源ではなく、本体の主電源を切りましょう。長時間使わない機器はコンセントからプラグを抜いておきましょう。	2%	25w

外出している時にも、①②③④⑥⑩の対策に取りくみましょう。
削減率の合計が15%をこえるように節電しましょう。

節電アクションとは?

鈴木さんの節電宣言

登録内容変更 ログアウト

我が家の削減実績

15%に向けて

まずは我が家の電力使用量を確認しよう!

詳しくはこちら

デボールにログインして電気のご使用量を見る

デボールに新規登録

デボールについてのFAQ

自分から入力する

8月28日(火) 14:15取得 電力使用状況

5分おきに更新 情報提供:東京電力/東北電力

東京電力エリア

でんき予報を見る

この時間のコメント数 26
コメント数 2678

投稿する

使用率90%を超えたよー!!
みんな、冷房を+1℃にしよう。
無駄な明りを消そう!!!
使用率90%を超えたー!!
冷房温度を2度上げます!

93%

電力使用量(%)

10 11 12 13 14 15 16 17 18 19 時

消費電量 2678kWh
削減電力 3750kWh

9時から20時までのみ

節電のワンポイント 14時は、部屋の室温が、一番高く感じられる時間帯です。涼風の部屋はカーテンを開ける事で、外からの熱を

NEWS

2011.08.xx

サンプルイメージ

「節電アクション」公式サイトオープンしました。

我が家の節電宣言

グループ機能

友達と、会社の同僚と、学校のクラスメイトと、みんなで1つのグループを作って15%削減に取りくめます。

グループ一覧

グループ機能とは

あなたの節電メニュー

あなたの節電メニューは 削減率合計 015%

1 冷房温度を2度上げる 10%

2 使用していないコンセントを抜く 2%

3 照明をLED照明に切り替える 5%

4 冷房温度を2度上げる 2%

5 使用していないコンセントを抜く 2%

節電メニューをつくり直す

参加賞・達成賞のご案内

参加賞

あなたの家庭の節電宣言参加証書です。協賛企業が提供するさまざまな特典が利用できるクーポンです。

ダウンロード

達成賞

15%の削減目標を達成すると、協賛企業から達成賞*をご用意。
*応募者多数の場合は抽選

7w 8w 9w

あなたが獲得した達成賞

達成すると、アイコンが表示されます。クリックで応募へ

(source) <http://seikatsu.setsuden.go.jp/about/mypage>

- Specific measures and its effect were provided by the government
- By saving 15%, users could take part in a prizes competition

This Summer, Electricity Forecast Anywhere



JYUKANKYO RESEARCH INSTITUTE INC.



(source) <http://www.tepco.co.jp/forecast/index-j.html>

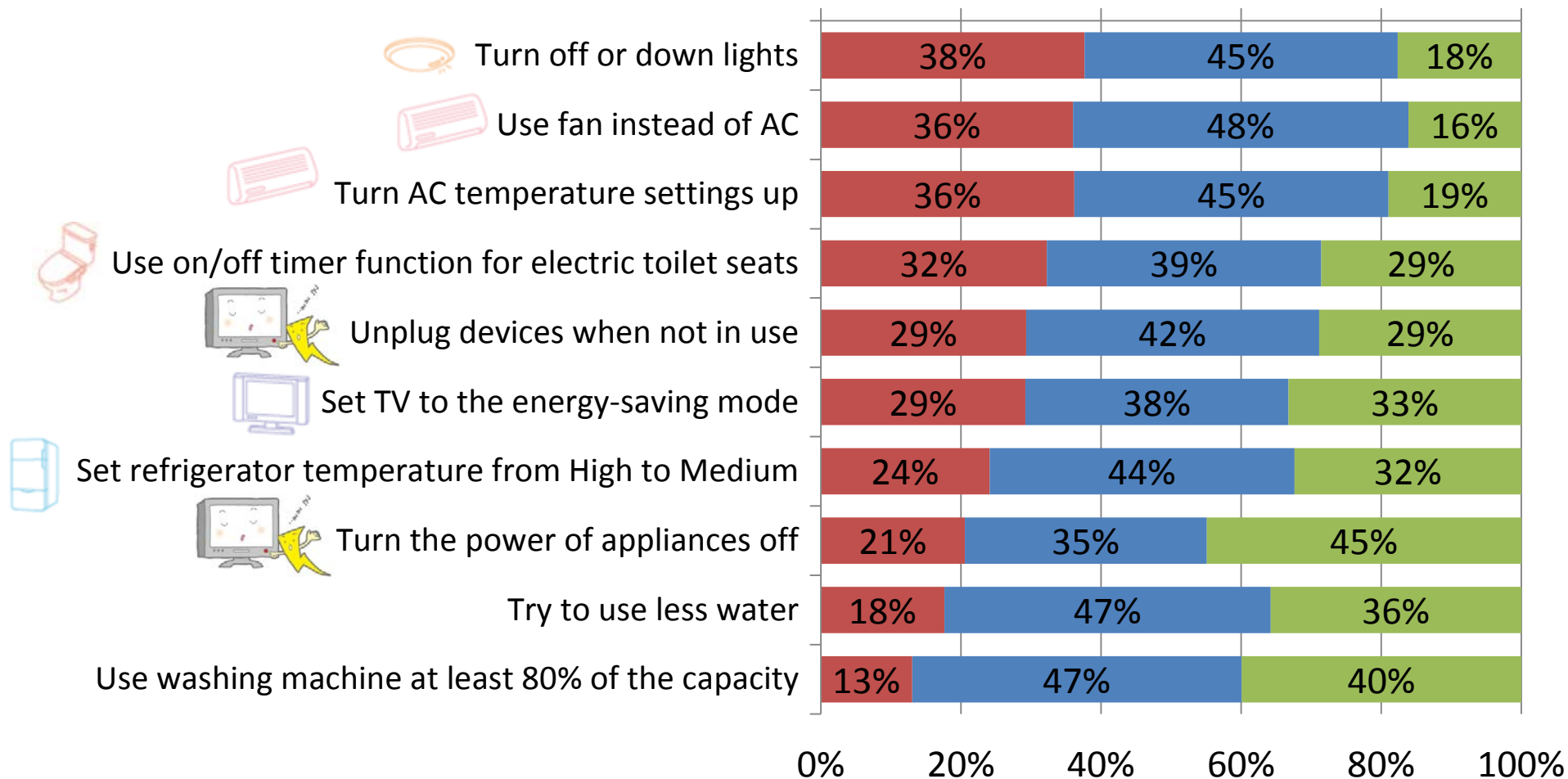
- Electricity Forecast provides Actual Demand, Demand Forecast, Maximum Supply Capacity, Last year's same day
- TV, Newspaper, Metro Station, Smartphone, Yahoo! ...etc.

Behavior Changes in this Summer



JYUKANKYO RESEARCH INSTITUTE INC.

■ Addressed this summer ■ Addressed before this summer ■ Not addressed

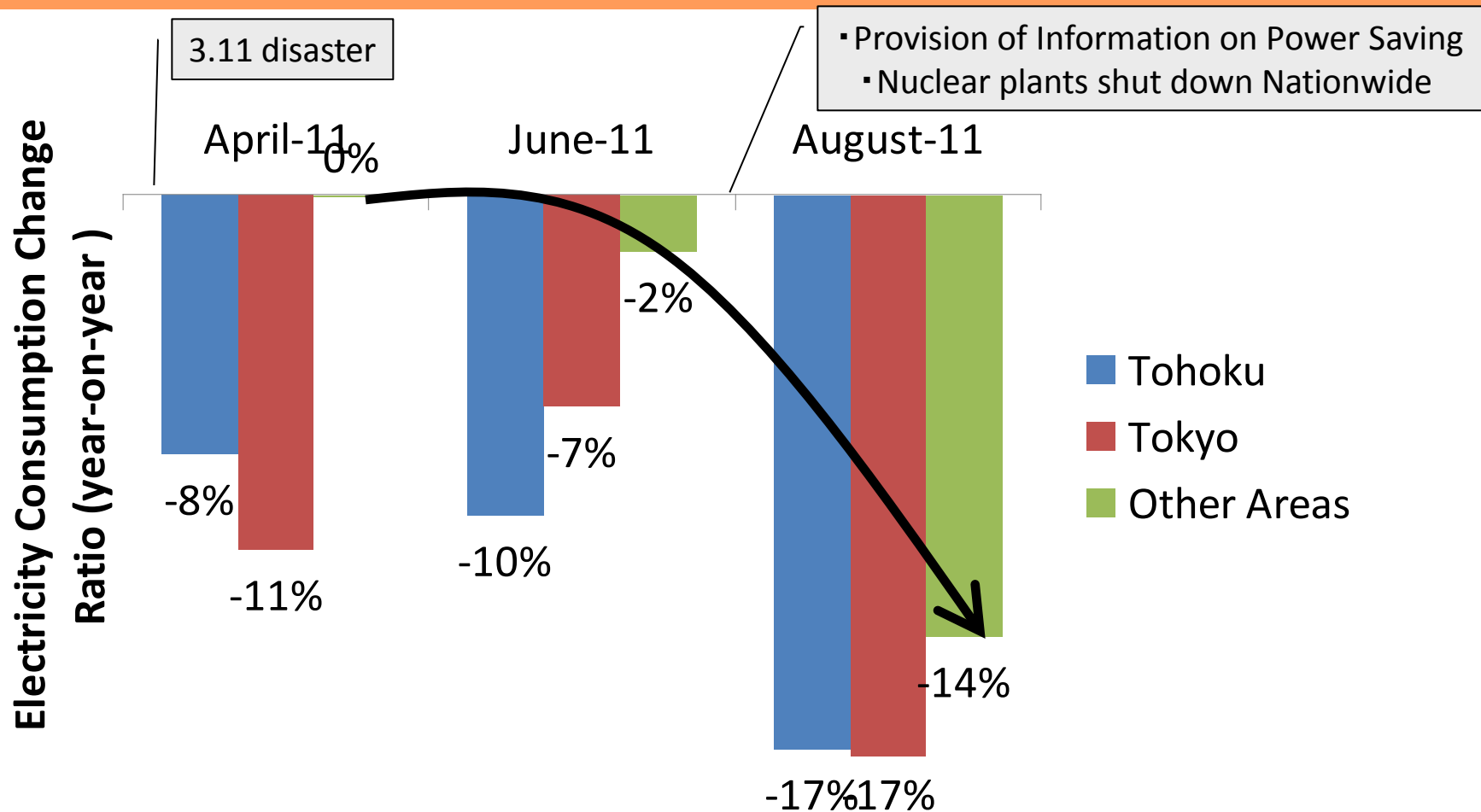


(source) Agency for Natural Resources and Energy, Japan, Energy Efficiency and Conservation Subcommittee

- Many of residents addressed lighting and cooling measures



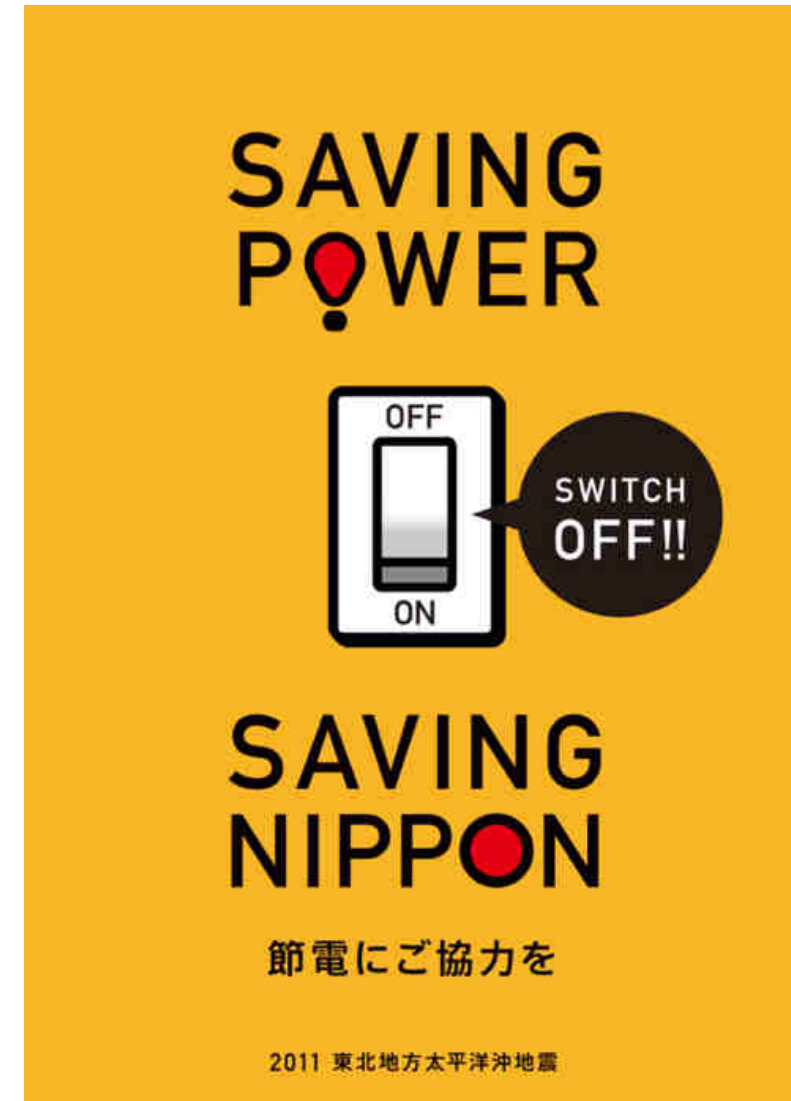
Households' Electricity Consumption after 3.11



(source) Federation of Electric Power Companies (<http://www5.fepec.or.jp/tokei/>)

- Tokyo and Tohoku saved around 10% in Spring
- Tokyo and Tohoku saved 17% and the others saved 14% in summer

- Review of the Japan's Basic Energy Plan
- Electricity Shortage is continuing
- Behavior Change concerning energy use is one of the key solution for these problems





JYUKANKYO RESEARCH
INSTITUTE INC.

**Thank You for your attention!
& Any Question?
(But Speak Slowly Please...!)**

hirayama@jyuri.co.jp
<http://www.jyuri.co.jp/index.htm>