



Saving Electricity in a Hurry

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Workshop Goals

- Appreciate the potential contribution of rapid conservation to help solve electricity shortfall
- Exchange experience on dealing with shortages
- Think about simple preparations for future shortages
- Understand the links between saving electricity in a hurry and saving slowly



Organisation

- 1. Lessons from abroad**
- 2. Lessons from nearby**
- 3. Preparations and strategies**



Rules of Behaviour

- **No discussions about supply**
 - ◆ This meeting is about electricity demand and conservation
 - ◆ The referee will enforce this rule
- **Ask questions**
 - ◆ It's OK to interrupt (within reason)



Conclusions

- **Rapid, temporary, reductions in demand are achievable without harming economy**
- **Effective use of the media is critical**
 - ◆ **Humour works**
 - ◆ **Goals are important**
- **You can't depend on prices alone**
 - ◆ **Many short-term reductions were achieved without raising prices**
- **Saving in a hurry is easier if already “saving electricity slowly”**
- **Don't be smug**
 - ◆ **Perfect storms happen surprisingly often**
 - ◆ **You can be (better) prepared**



Temporary Power Shortfalls

Power Shortage

```
graph LR; A[Power Shortage] --> B[Supply reduced]; A --> C[Demand increased];
```

Duration: 1 day – 1 year

Advance warning: 1 day – 1 year

Supply reduced

- ❖ Drought
- ❖ Loss of transmission
- ❖ Loss of power plant

Demand increased

- ❖ Heat wave
- ❖ Cold wave



Saving in a Hurry is Different

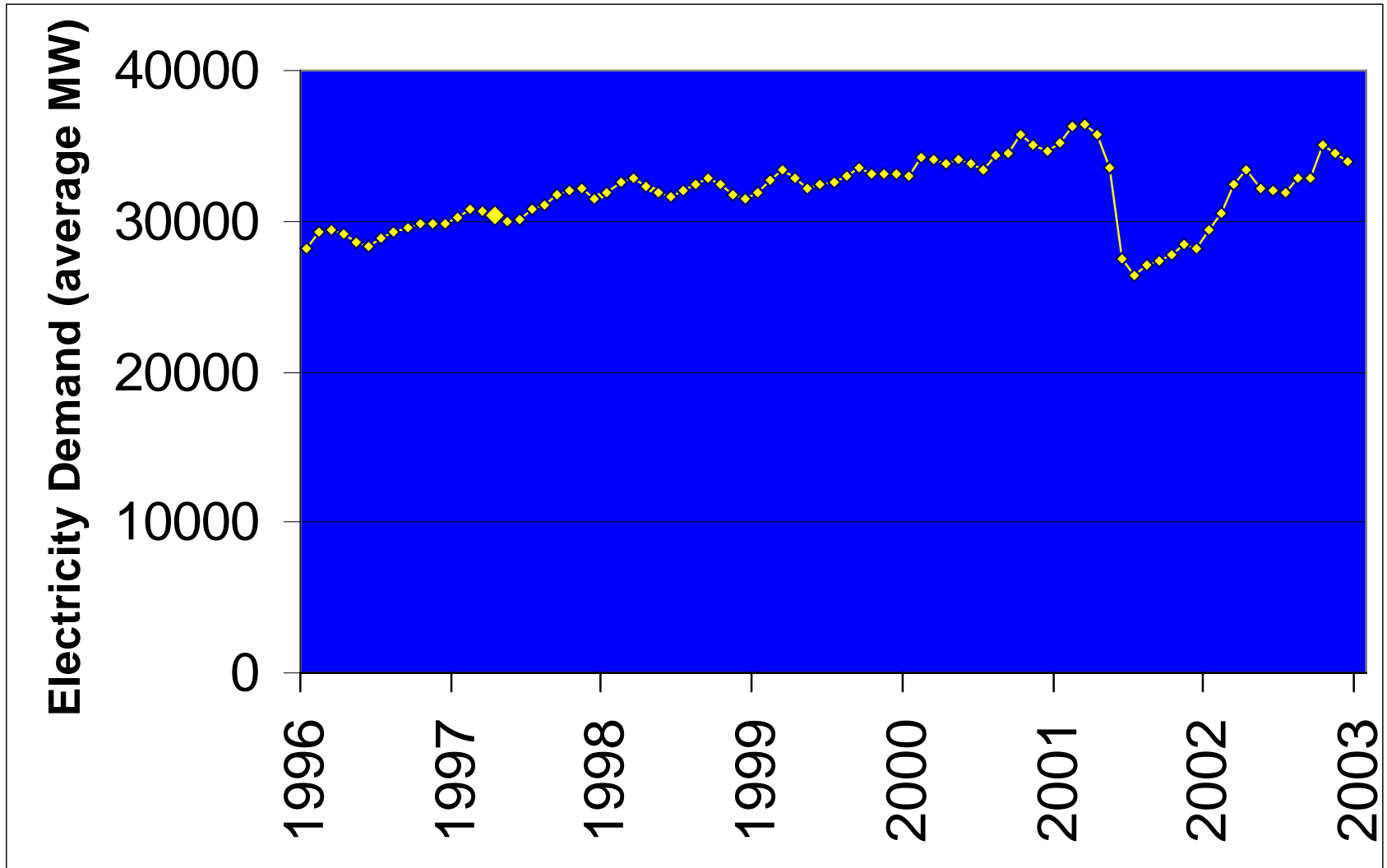
- **Temporary**
- **Rely mostly on changes in behaviour**
 - ◆ **Technological improvements cannot deliver savings fast enough**
 - ◆ **Sacrifice may be acceptable**
 - ◆ **Strategies change with longer advance warning time or expected duration**
- **Can't rely on higher prices alone to cut demand**
 - ◆ **Technical and political obstacles**



Previews & Examples

- Large savings have been achieved
- Effective use of the media is critical
- Symbols are important
- Politics cannot be ignored

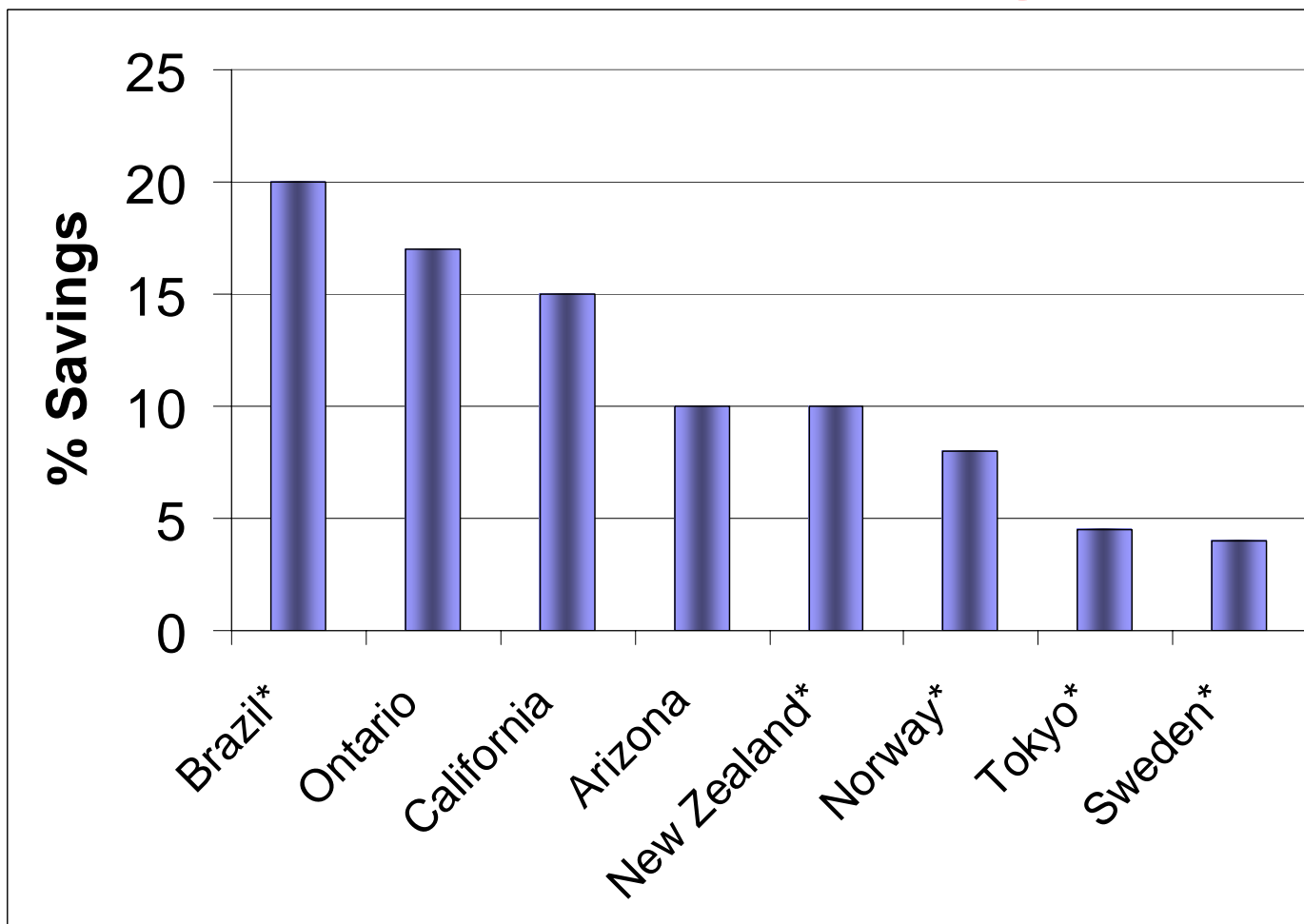
Brazil Results: 20% reduction



- No blackouts, economy survived, savings continued



Summary of Savings



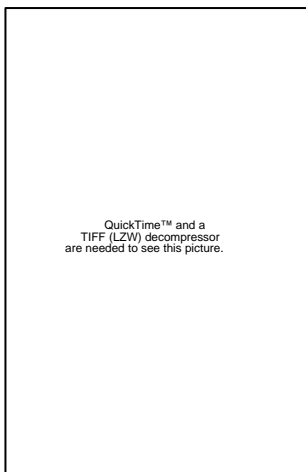
* No significant blackouts occurred



Symbols are Important

- **Need to convince customer that a crisis exists (before the lights go out)**

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.



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TIFF (LZW) decompressor
are needed to see this picture.

**It's easy for
customers
to
understand
a drought**

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

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TIFF (LZW) decompressor
are needed to see this picture.



Arizona Loses 20% of Capacity During Peak Season (2004)

- **2003: Utility delayed installation of firewalls at Westwing?**
- **2004: July 4, Westwing transformer station fire**
- **July: Forest fires cut transmission lines**
- **July 20: Deer Valley transformer station fire**

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

Arizona/Phoenix

Arizona (USA) transformer fires

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.



Help is on the Way!

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

Local media covered the (slow) progress of the
transformer across the desert



Rapid Reductions in Demand Avoided Blackouts

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.



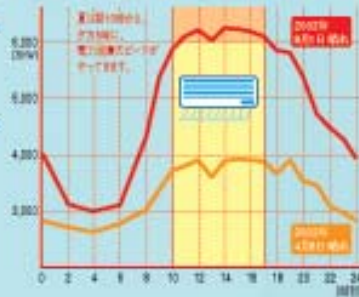
Tokyo: Nuclear Plants Shut Down

- **2003: TEPCO forced to close all nuclear plants after it falsified safety reports**
 - ◆ Nuclear = 40% of capacity
 - ◆ Summer peaking
- **Conservation program started slowly**
 - ◆ A public relations challenge
 - Nuclear power tied to national policies
 - Little humour

社員みんなので、節電宣言!

電力消費が増加する夏がやってきました。
節電にご協力をお願いします。

本格的な夏の訪れとともに、電力消費がピークを迎えます。そうした中で、関東圏の電力の4割以上を供給している新潟県、福島県の原子力発電所のほとんどが安全点検などのため停止しています。そのためこれまで停止していた火力発電所の運転を再開するなど、電力の安定供給に努めています。今後電力消費の増大する夏期に向け、電力需給は引き続き厳しい状況にありますので、みなさんも、節電にご協力をお願いします。



藤岡 真由

「我が社の節電宣言」大募集!

一緒に節電しましょう

「我が社も節電しています!」という企業の皆さま、節電宣言してください。
宣言いただいた企業さまはホームページでご紹介!

会社のエールでの「節電」に御社ならではの企業特色を掲載しています。「節電宣言」いただいた企業さまの「会社名」「節電への取り組み」を、経済産業省資源エネルギー庁の節電キャンペーンホームページでご紹介します。ぜひ、貴社の節電への取り組みをお知らせください。

【応募方法】節電キャンペーンホームページ (<http://www.seisuden.info>) 24時間受付。会社名・節電への取り組みをWeb上で公表させていただきます。他に、新聞紙面ほかの参加する節電イベント(7月)や知予定のご案内をお送りします。

〈節電率目標〉総消費電力で0.8%削減に「取り組みの首脳一斉節電運動」を実施し、事務室の照明OFF、エレベーターの運転台前を半時計、パソコン等の電源OFF、集中冷暖システムOFF、この4項目で約24%の節電を達成しました!

【節電キャンペーン事務局】
〒104-0045 東京都中央区築地4-7-3-8F
TEL:03-3524-0390 FAX:03-3524-0779 e-mail:seisuden@met.go.jp

オフィスでできる節電のコツ

節電はコツコツがコツです。

エアコンの設定温度は28℃



エアコンに利用する電力の
約10%の節電
冷房運転時最大の場合

昼休みの
オフィスは消灯



照明は消すだけで
約10%の節電
昼休みの1時間
消灯の場合

長時間、眠る際は
パソコンの電源をOFFに



パソコンは待機電力
約10%の節電
長時間の待機は上
部を閉め、パソコン
の電源を切ることで

電気ポットなどを使わない
時はコンセントから抜く



電気ポットや掃除機などの
約10%の節電
電気ポットや掃除機
の電源を切ることで
約10%の節電が
期待できます。

OA機器を購入する際は
省エネ型の商品に



省エネ型の商品は、省エネ
マークや省エネマークを
見ると、省エネ型の商品が
わかります。

【節電情報は、会社のホームページにより異なります。】

電力供給に関するさまざまなこと、私たちは真摯に受け止め、深く考えています。

経済産業省 資源エネルギー庁
節電に関する詳しい情報は、<http://www.seisuden.info>まで。

Japanese government advertisement urging consumers to conserve electricity, explaining peak power, and suggesting measures



Tokyo Electric Power Company spokesperson explaining power situation in July 2003



Tokyo: Savings

- **“4.5%” savings & no blackouts**
 - ◆ **Unusually cool summer major reason for no blackouts -- lucky!**
 - ◆ **Conservation probably prevented a blackout during one week**
 - ◆ **Actual savings may have been higher**

Critical Week



QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

Actual demand
(cool summer)



A Cold Monday in Sweden (February 2001)

- **On Friday, extremely cold weather forecast for Monday**
- **Vattenfall expected to have insufficient capacity on Monday**
 - ◆ **Peak demand often occurs on Monday because companies restart factories**
- **During weekend Vattenfall requested consumers to conserve power on Monday morning**
 - **Newspaper articles, radio, TV**



Sweden: Savings

- **Demand reduced 4% compared to original forecast -- Blackout avoided**
 - ◆ Actual Monday temperatures were colder than expected
 - ◆ Large savings surprised utility
- **Residential prices not changed**
 - ◆ Spot prices rose sharply
 - ◆ Some electricity traders burned
- **Vattenfall decided to use this “tool” more carefully in the future**



Shortfalls Happen

- **Norway's drought & cold winter**
- **Ontario's slow re-start of nuclear power plants after blackout**
- **Flood destroys cooling intake for Michigan power plant**
- **A cold Monday in France**

But now in detail...

- **California, New Zealand, Brazil**



Real-time Display of Demand & Supply -- California*

