

**State Electricity Regulatory Commission
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Sara Bryan Pasquier

International Energy Agency



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3 steps to prepare

- 1. Identify possible shortfall scenarios and project their anticipated cause and duration.**
- 2. Identify the main opportunities for energy savings through which savings can be made with minimum negative impact on society and the economy**
- 3. Implement a comprehensive and balanced package of energy-saving tools (rationing, pricing, information campaigns, technology replacement)**

1. Identify possible shortfall scenarios and project their anticipated cause...

Country/state	Year	Cause	Constraint
Alaska	2008	Avalanche cut transmission line	Capacity
Bangladesh	2005	Demand growth, insufficient investment	Capacity
Chile	2007/08	Drought, gas shortfall, plant breakdowns	Energy/capacity
China	2007	Drought	Energy
Ethiopia	2009/10	Demand growth, insufficient investment	Capacity
Japan	2011	Earthquake/tsunami causes plant failure	Capacity
New Zealand	2008	Drought	Energy
Pakistan	2007	Demand growth, insufficient investment	Capacity
South Africa	2008	Demand growth, insufficient investment	Capacity

...and duration.

- **Short-run, no-cost or low-cost changes: turn off lights, unplug electronics, use electricity at different times of day.;**
- **Medium-term, medium-cost changes: install weather stripping, switch to CFLs, purchase a programmable thermostat;**
- **Long-term, infrastructure and policy changes: make window and building envelope improvements, strengthen energy-performance requirements in building codes.**

- 2. Identify the main opportunities for energy savings with minimum negative impact on society and the economy**

3. Implement a comprehensive and balanced package of energy-saving tools

- a. Price signals**
- b. Information campaigns**
- c. Technology replacement**
- d. Rationing and market mechanisms**

a. Dynamic pricing

- **Time-of-use (TOU) pricing**, in which price varies according to a preset schedule, *e.g.* time of day, day of week and season.
- **Real-time pricing (RTP)**, in which the end-user price is linked directly to hourly spot prices in a wholesale market.
- **Critical-peak pricing (CPP)**, a hybrid of TOU and RTP in which a TOU rate is in effect all year except for a contracted number of peak days (exact dates unknown) during which electricity is charged at a higher price.

b. Best-practice information campaigns

- **Analyse the determinants of desired behaviour change**
- **Identify the target group**
- **Choose the most effective communications channels**
- **Convey urgency while keeping an upbeat tone**

c. Common technology replacements

- **deploying energy-efficient lighting, especially compact fluorescent lamps (CFLs) and light-emitting diodes (LED);**
- **replacing old equipment (ranging from refrigerators to traffic signals) with new, more-efficient technology;**
- **retrofitting and/or adjusting existing equipment to make it more efficient;**
- **installing load-control devices on selected appliances and equipment.**

d. Rationing and market-based instruments

- Block load shedding
- Consumption rationing via quotas or entitlements
- Market-based rationing (quota and trade)
- Incentive/reward schemes (*e.g.* California's 20/20 rebate programme)

Key messages from the case studies

Case study	Key message
Japan	Most consumers are ready to respond to a crisis. They just need a little guidance in order to quickly contribute
Juneau, Alaska	Establishing a new, neutral entity (not government or industry) can help mobilize community response
New Zealand	Shortfall-prone countries should put in place pricing and other mechanisms to mitigate shortfalls
South Africa	Don't rely on a single sector – need to mobilize all consumers
Chile	Plan ahead through collecting good data.

Recommendations for Governments and Regulators

- Evaluate whether your power sector is exposed to electricity shortfalls, and if so make contingency plans
- Designate responsibility for planning and implementing shortfall management strategies
- Make sure energy providers collect data on electricity usage patterns, to identify energy savings measures
- Consider the full range of energy savings measures in any electricity shortfall strategy
- Anticipate and resolves any regulatory or other barriers to your energy savings measures
- Clearly articulate a trigger point that defines when a shortfall is imminent, and when shortfall management should commence