Case Study
Scenario Planning at Southern California Edison

> *By focusing on plausible uncertainties and postulating alternative futures, scenario planning emphasizes the unpredictability of future events and their impact on operations, sales, prices, demand, and so forth. The process of constructing and analyzing the impact of scenarios forces the planners to delve into the dynamics, the cause-and-effect relationships that determine the future. The process identifies major weaknesses as well as major opportunities that exist under different scenarios. Consequently, management can prepare contingency plans to deal with threats and take advantage of opportunities.*[1]

Southern California Edison (SCE) used scenario planning to guide its investment strategy when faced with the need to expand its production capabilities. They used a three-stage process: scenario development, implications of scenarios, and development of strategies. As the first step in scenario development, they identified eight key factors that would influence their need for generating power:

- Price of fuel and purchased power
- Base case rates based upon current operating and maintenance costs
- Demand for electricity, which was assumed to be proportional to economic growth
- Changes in environmental regulations
- Open access to SCE's transmission
- Customers generating their own power
- Technical innovation (for the company and for consumer appliances)
- Population growth
- Generation shutdown

They then created an initial set of 45 scenarios based upon these eight drivers, which they clustered into groups from which they eventually selected twelve scenarios for analysis. The twelve scenarios were each defined by changes in production requirements related to the eight drivers. The scenarios were designed to span a range of production ranging from 5,000 megawatts below their base case forecast to 5,000 megawatts above. Table 1 shows how four of the strategies were defined in terms of increases or decreases in production that were related to the eight drivers. Taken together, these twelve scenarios indicated the extent to which SCE should plan for dealing with the need to increase or decrease production. SCE then identified ways that they could increase or reduce production capacity for each scenario, by using strategies such as the following:

- Capacity could be increased by 900 MW by taking power plants out of standby reserve or reduced by as much as 1500 MW by putting additional power plants into standby reserve.
- Energy purchased from other companies could be increased by as much as 2,000 MW.
- Energy management, such as peak load pricing, could be used to add 500 MW or to reduce 1050 MW of production.

This analysis revealed problems that SCE would have to deal with under some of the extremely low or extremely high demand scenarios. For example, to deal with increased power needs, SCE identified projects that could be implemented quickly so as to increase capacity, and they determined that they would need to enhance their ability for energy management.

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[1] Fred Mobasheri, Lowell H. Orren, and Fereidoon P. Sioshansi, "Scenario Planning at Southern California Edison", **Interfaces** 19:5, 1989 p. 34.

Table 1 Change in Production Requirements (in megawatts) for Selected Strategies and Scenarios

Driver	Economic Bust	Expanded Environmental Concern	Low Cost Fuel	Economic Boom
Fuel and purchased power	-1,000	-	1,000	500
Base rates	-500	-	500	500
Economic growth	-3,000	-	2,000	3,000
Environment	-	-1,500	-	-
Open Access	-	-	-	-
Self-Generation	-	-	-	-
Technical Innovation	-	-	-	500
Population Growth	-500	-500	500	500
Generation Shutdown	-	-	-	-
Total Changes from Base Case	-5,000	-2,000	4,000	5,000

Source: Mobasheri et al, 1989, p. 38.

Resource: Project Evaluation: Essays and Case Studies

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