

Estimating the Market Effects of NYISO PRL Programs

Project Overview

Presentation to:

NYISO PRL Working Group

By:

Neenan Associates

September 14, 2001

PRL Evaluation Task Structure

Task 1: Design and Process Improvement

- *Customer Acceptance* – survey customers to collect information on their characteristics and PRL product preferences
- **Process Improvements** – survey LSEs and CSPs to collect information on how well design and implementation process and procedures performed

PRL Evaluation Task Structure

Task 2: Price Responsive Analysis

- ***Customer Response*** – estimate responsiveness of customers and customer segments
- **Market Impact** – estimate the impact of load curtailments on market prices
- **Response Simulation** – combine the results to develop methods to ascertain the price impacts of PRL resources both *ax ante* and *ex post*

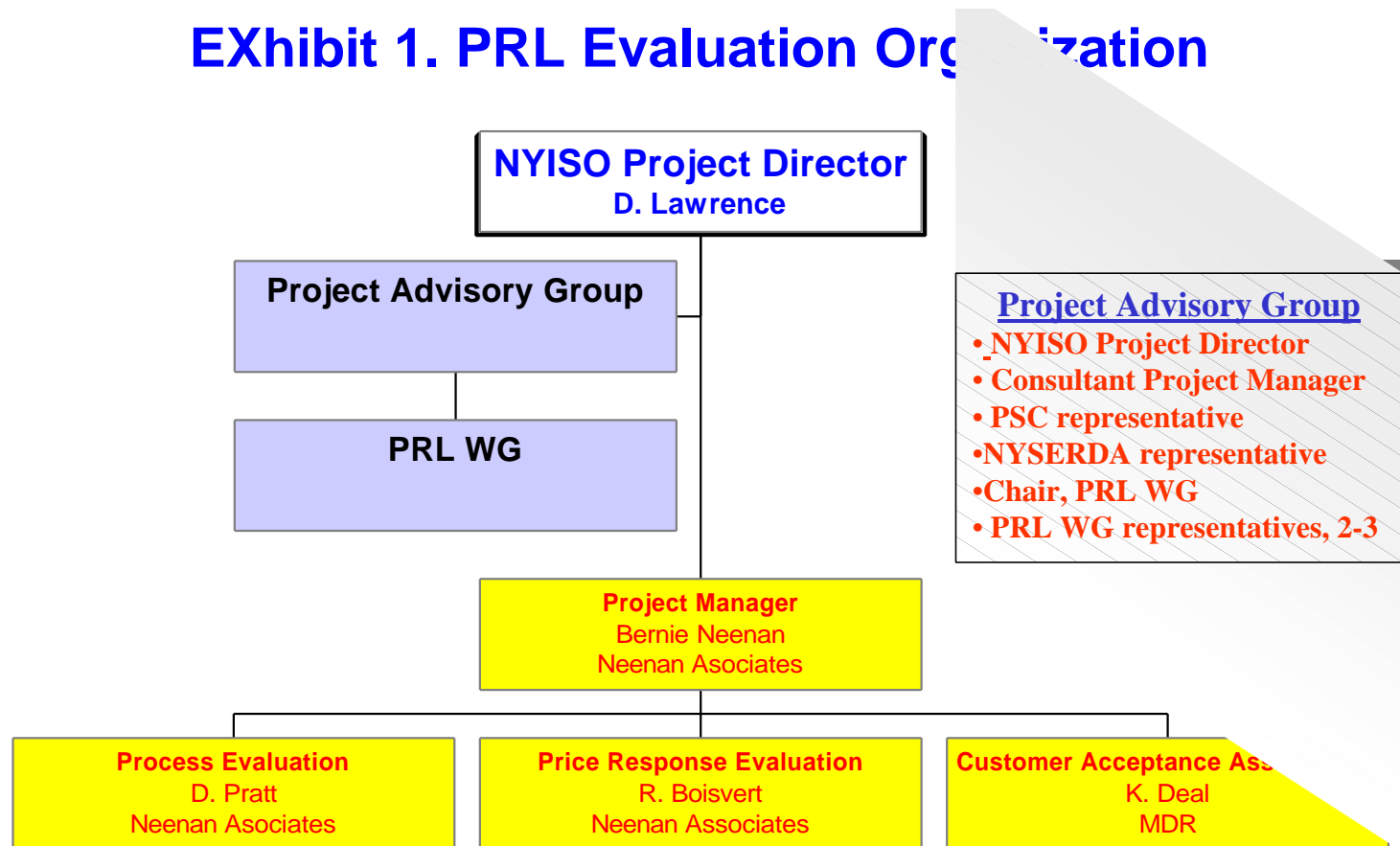
PRL Evaluation Task Structure

Task 3: Collaborative PRL Evaluation

- **Combine the PRL response data of ISO-NE, PJMISO and NYISO for more robust price impacts**
- **Pool market data to improve supply flexibility estimation**
- **Use results to create more robust simulation platform**

PRL Evaluation Organization

EXhibit 1. PRL Evaluation Organization



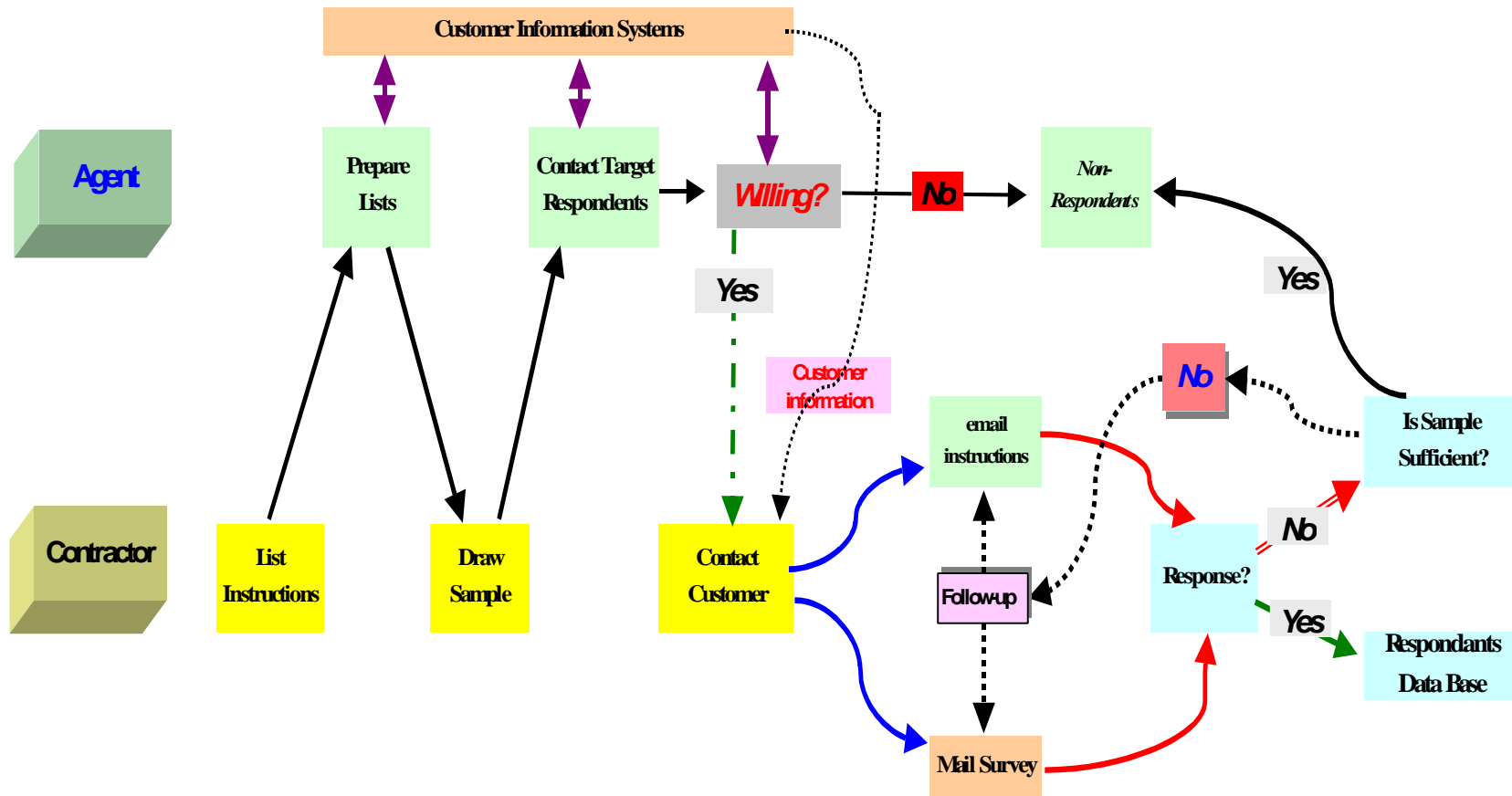
PRL Evaluation Schedule

Figure 1. PRL Program Evaluation Schedule and Deliverables – Project

	July	August					September					October					November					December-January
week ending	27	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30			
Process Evaluation	Work Plan	Identify processes	Methods and Procedures			Gather data and conduct interviews					Top level analysis	Draft results	Revisions									
Response Analysis	Work Plan	Calibrate SS and DD models. Collect Data				Estimate DD & SS elasticities			Simulate Price effects		Draft recoms			Revisions								
PRL Collaborative	Develop Models, data collection methods				Gather Data, Develop Models			Conduct Analyses					Draft Report					ISO Workshops/Final Report				
Project Reporting		Final Work Plan				Project Review		Project Review						Draft Results	Review and revision			Final Report				

Task 1 Customer Survey Flows

Flow of Information and Activity for Survey of Customers



Task 1 Customer Survey Development Timetable

Table 1.2 Timetable and Responsibilities for		
<i>Developing the Customer Survey</i>		
<i>Who?</i>	<i>What?</i>	<i>When</i>
Neenan Associates	Distributes confidentiality agreement to agents for execution	Aug 27
Agents	Return executed confidentiality agreements to Neenan Associates	Aug 31
Neenan Associates	Develops a draft survey instrument and distributes it to agents	Sept 10
Agents, NYISO, NYSERDA	Review instrument and send comments and revisions to Neenan	Sept 17
Agents, NYISO, NYSERDA Neenan Associates	Test final evaluation instrument and make final revisions	Sept 14
Neenan Associates	Prepares paper surveys for distribution	Sept 17
Survey subcontractor	Prepares Web site of survey administration	Sept 14
Neenan Associates, Survey contractor	Survey administration begins	Sept 21

Task 1 Customer Survey Administration Timetable

Table 1.3 Timetable and Responsibilities for <i>Administering</i> the Customer Survey		
<i>Who?</i>	<i>What?</i>	<i>When</i>
Neenan Associates	Issues request to agents for list of participants and Informed Non-participants	Aug 27
LSEs and CSPs	Prepare lists and send them to Neenan	Sept 5
Neenan Associates	Determines sample for survey and sends target respondent lists to agents	Sept 10
LSEs and CSP	Contact customers to recruit their participation and forward names of those that accept to Neenan	Sept 12 – Sept 21
Neenan Associates	Instructs customers on how to complete the survey	Sept 21 – Oct 12
Neenan Associates	Tracks survey completions and contacts customers that do not reply after one-two weeks.	Sept 21 – Oct 12

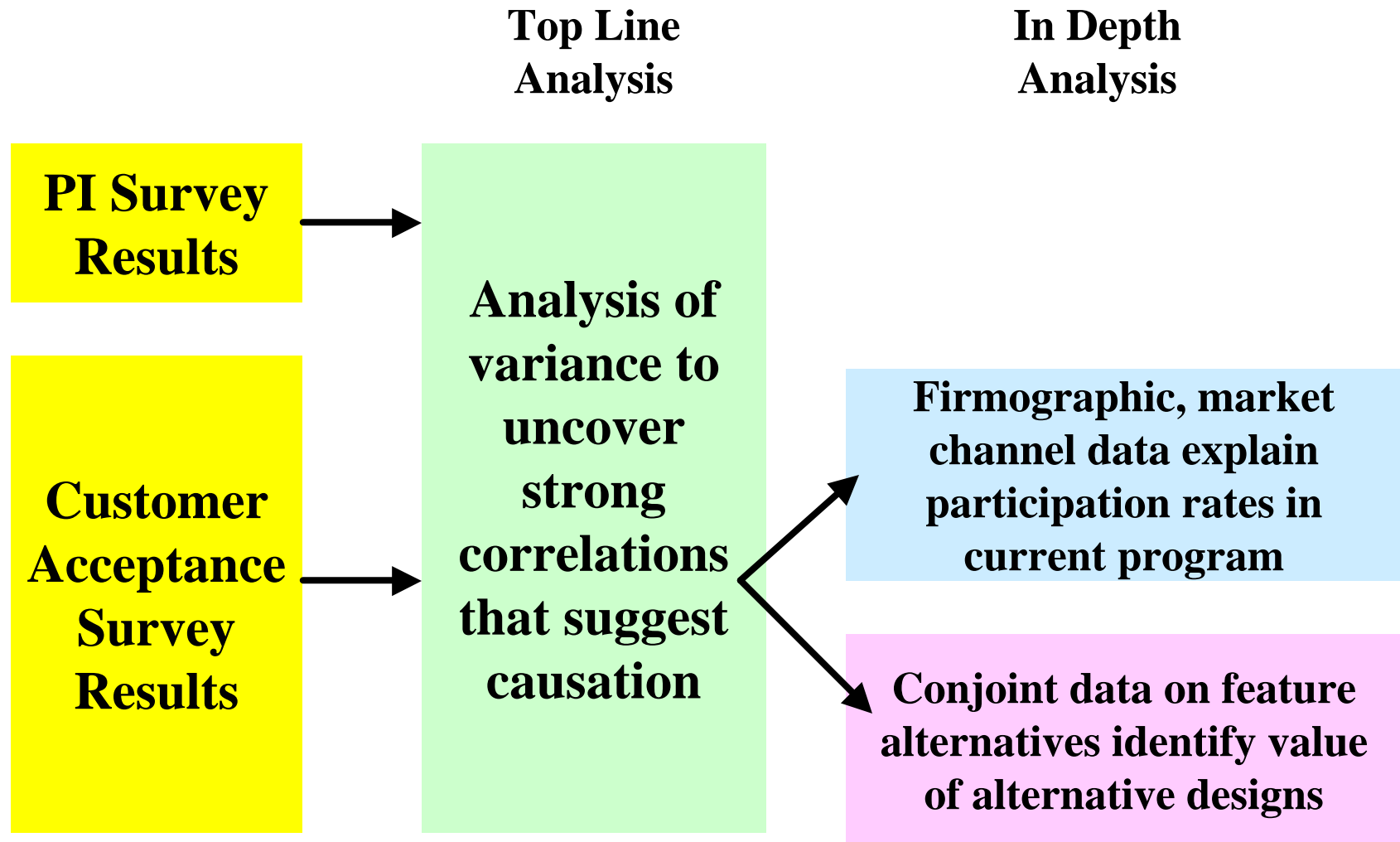
Task 1 Customer Survey Evaluation Methodology Timetable

Table 1.3A Survey Data Evaluations			
Survey	Focus	Top-line Analysis <i>October 30</i>	Fully Integrated Analysis November 30
Process Improvement	LSE and CSP assessment of how procedures and processes worked.	To be performed by individual LSE/CSP and reported to PSC.	Analysis of variance of key hypotheses regarding process improvements.
Customer Acceptance Testing	PRL Participants' assess the program they participated in and value alternative program designs.	Analysis of variance of key hypotheses to summarize important relationships.	In depth evaluation of how key product features contribute to customers' product valuation.

Task 1 Process Improvement Timetable

Table 1.1 Timetable and Responsibilities for Developing and Administering the Process Improvement Instrument		
<i>Responsible Entity</i>	<i>Process Assessment Survey Activity</i>	<i>Due Date</i>
Neenan Associates	Based on issues identified by the Project Steering Group, Develop a draft instrument and distribute it to agents for review and comment	Sept 10
LSEs, CSPs, NYISO, NYSERDA	Review instrument and send comments and revisions to Neenan	Sept 17
Neenan Associates	Develop final evaluation instrument	Sept 21
LSE, CSPs	Complete evaluation instrument as part of their Process Improvement evaluation	Sept 21 – Oct 12
LSE, CSPs	Each Agent will summarize results of findings of its evaluation including those derived from the evaluation instrument, and submit copies of the Process Improvement reports to DPS with copies to Neenan	Oct 12 - 28
LSE, CSPs	Send evaluation instruments to Neenan for collective evaluation.	Oct 12

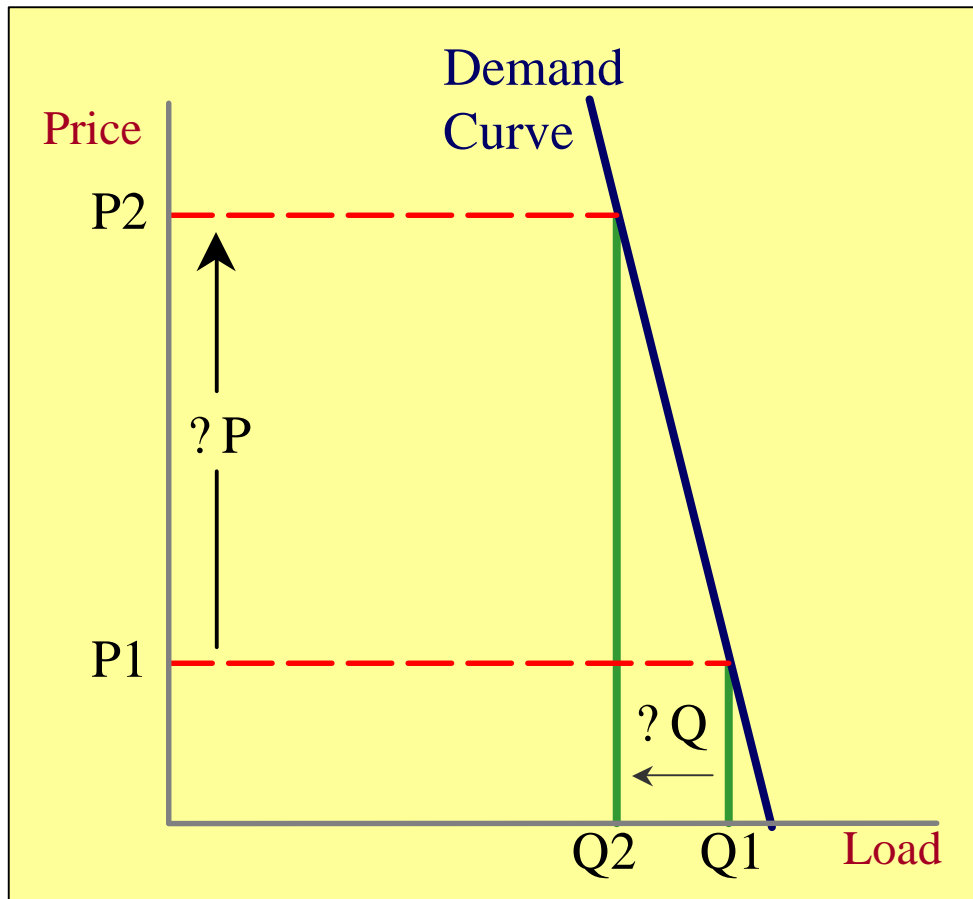
Task 1 Customer Survey Evaluation Methodology



Essential Tasks to Evaluate PRL Program Market Effects

- 1. Estimate the load response of PRL customers;**
- 2. Estimate the electricity market supply flexibility;**
- 3. Simulate PRL program benefits, costs and change in price
risk**

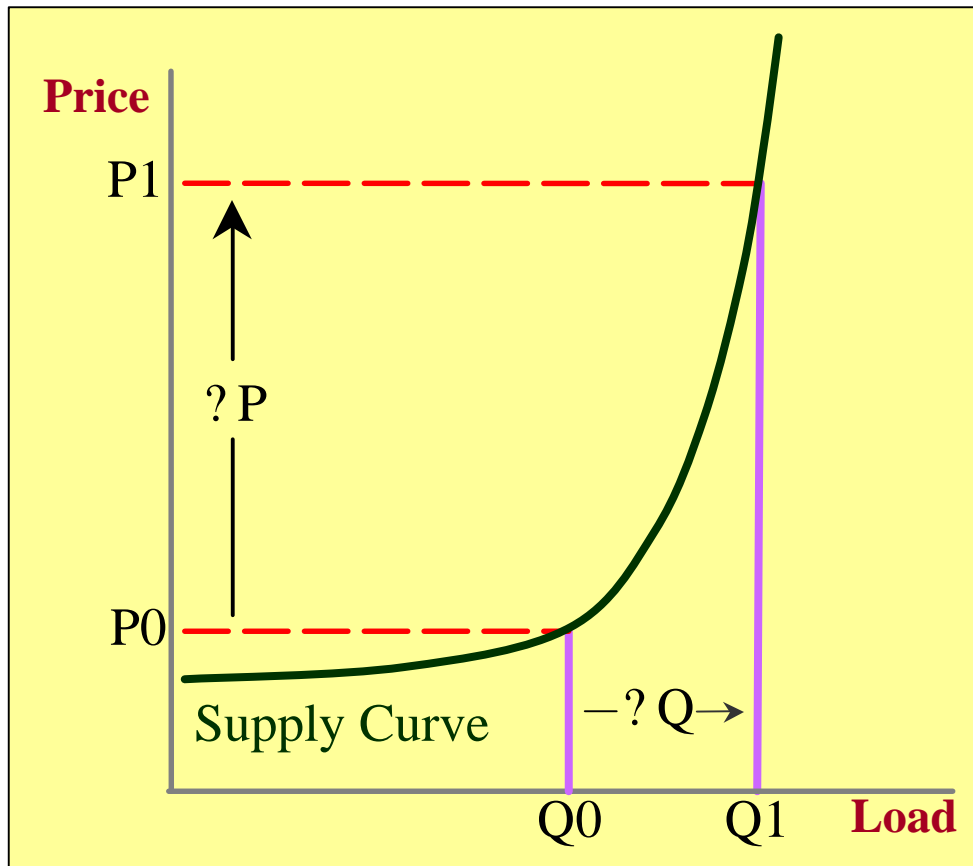
Price Responsive Demand Curve for Electricity



Price Elasticity is the % change in Quantity Demanded due to a 1 % change in price

$$\text{Price Elasticity} = \frac{?Q/Q1}{?P/P1}$$

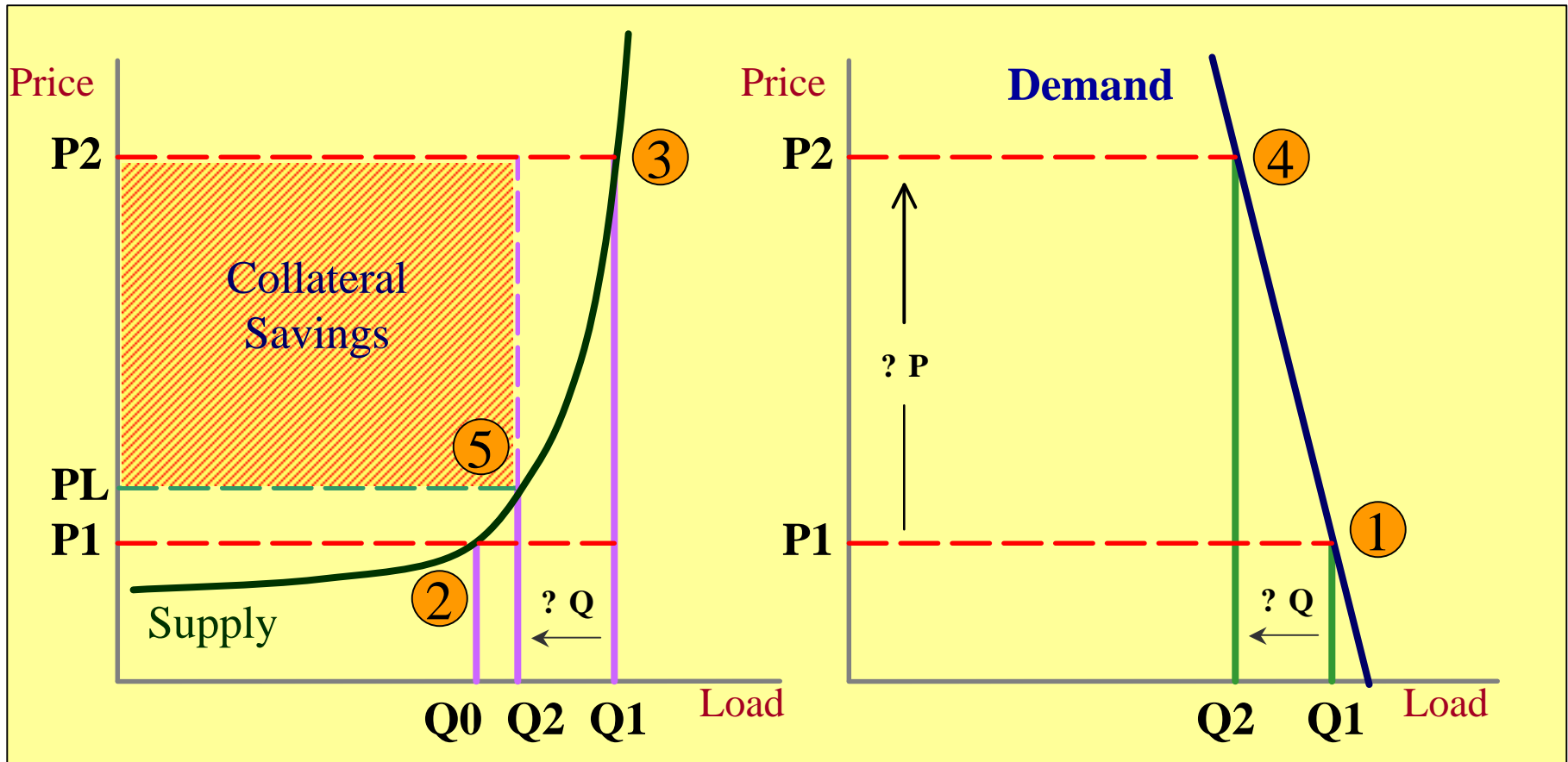
“Hockey Stick” Supply Curve for Electricity



Price Flexibility is the % change in price due to a 1 % change in load

$$\text{Price Flexibility} = \frac{? P/P_0}{? Q/Q_0}$$

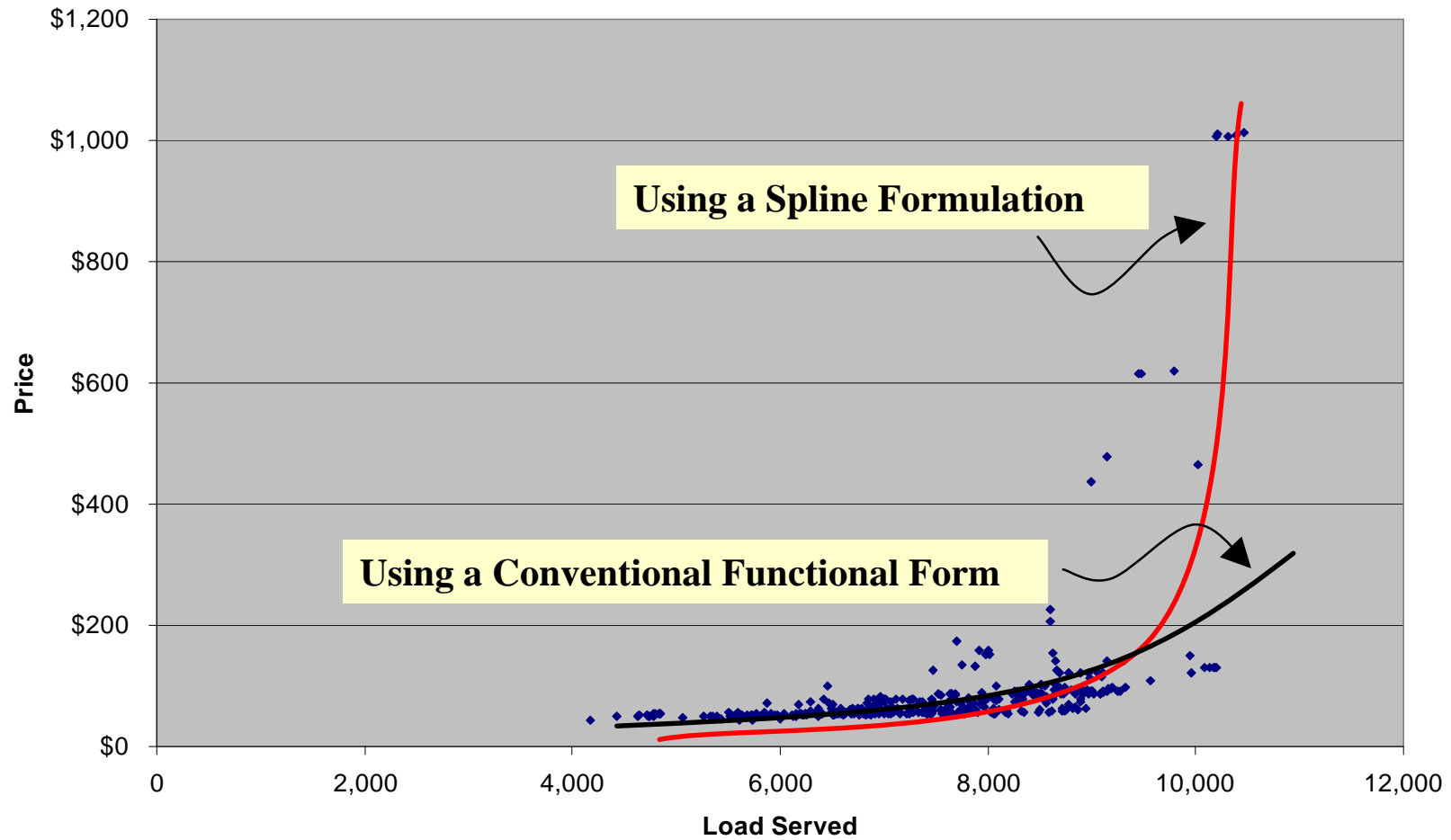
The Dynamics of Price-Responsive Load



- ① Retail rate and corresponding demand.
- ② Supply offered at retail rate.
- ③ Retail demand supplied only at higher price.
(LBMP with no load reduction)

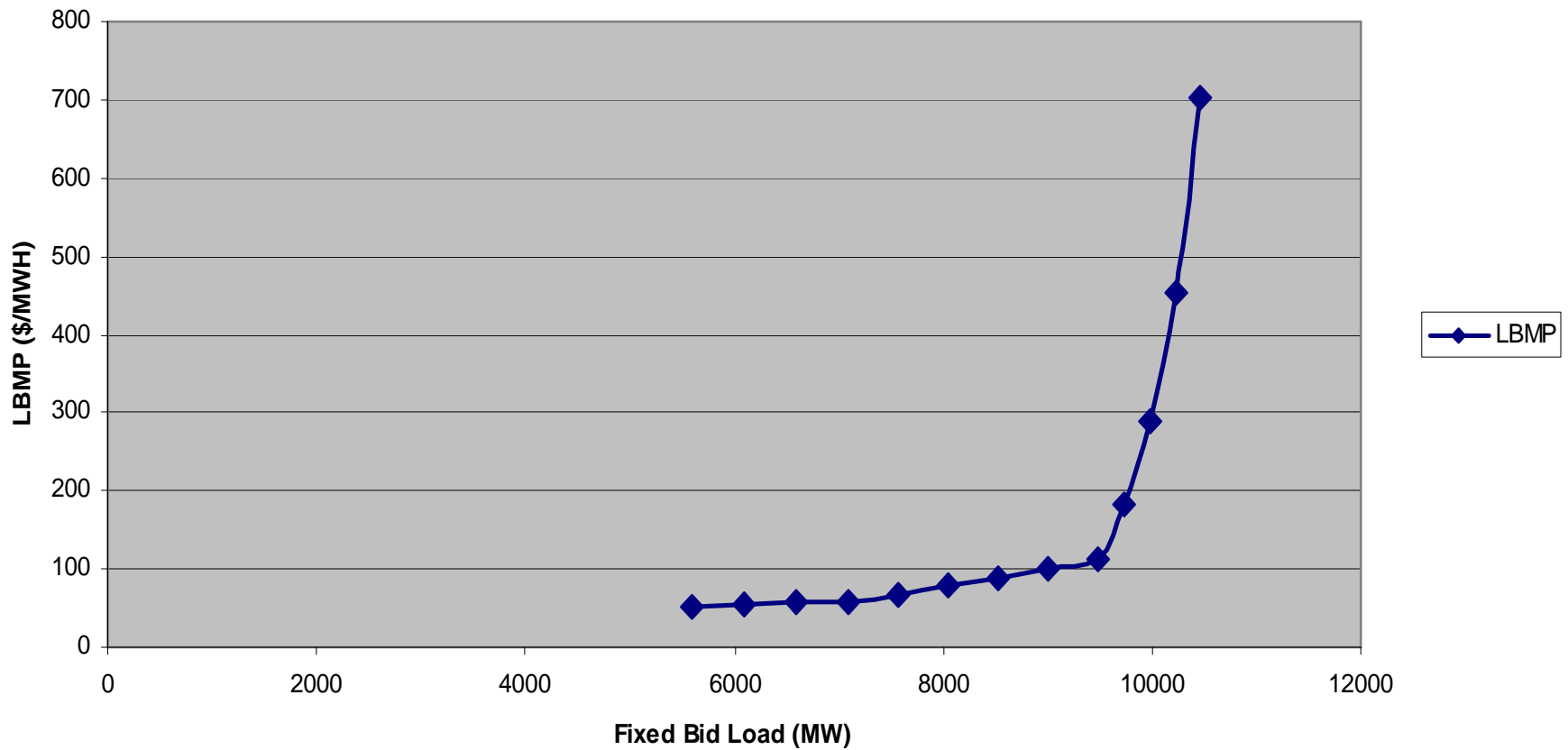
- ④ Reduction in retail demand due to higher price.
- ⑤ LBMP after scheduled load reduction.

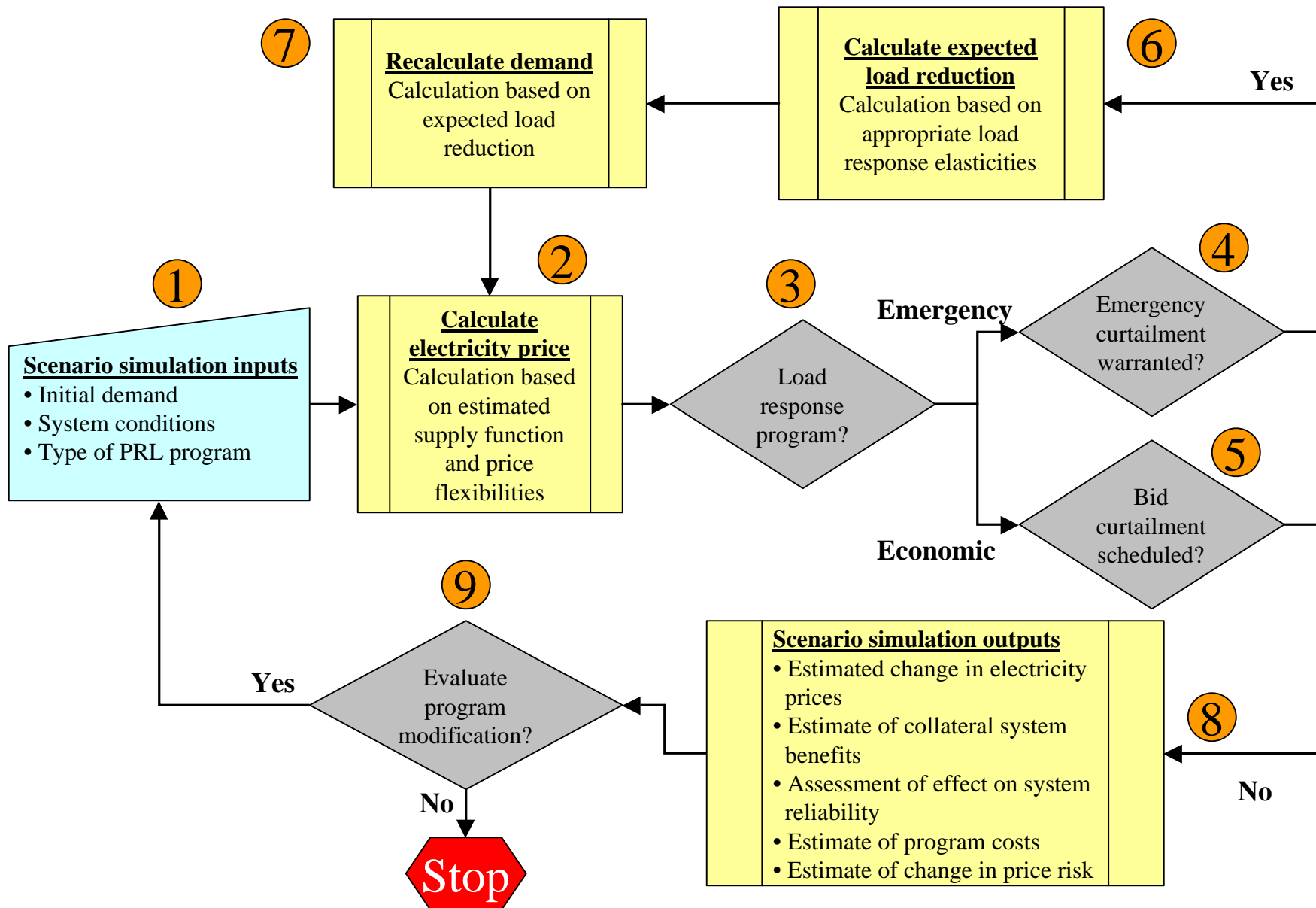
Scatter Diagram of Market-Clearing Price vs. Load Served



Graph of Estimated NYC Short-Run Supply

Estimated LBMP for Range in FBL, NYC--Spline Model for June - August, 2000





Flow Chart for Determining Effects of PRL Reduction