

**NYISO
Demand Response
Programs
Evaluation Survey
Draft Findings**

Presented
December 10, 2001
Neenan Associates

Study Objectives

- To **evaluate** the NYISO's 2001 Demand Response Programs based on customer feedback.
- To identify **refinements** that can be made to provide even better DRPs for 2002.

Methodology

- Survey of 111 individual customers, including 187 accounts.
- Survey conducted by mail and by Internet 10/05 – 11/02.

	Participants			Informed Non-Participants			Total	
	LSEs	CSPs	Other	LSEs	CSPs	Other	P	INP
Available Population	140	127	10	3293	?	477	277	3770
Surveys Sent	140	51 (2)	10	478	0	48	201	526
Completed Surveys Received	35	51 (2)	7	75	0	19	93	94
Total: Surveys Sent							680	
Total: Survey Responses to date							187	

Statistically speaking ...

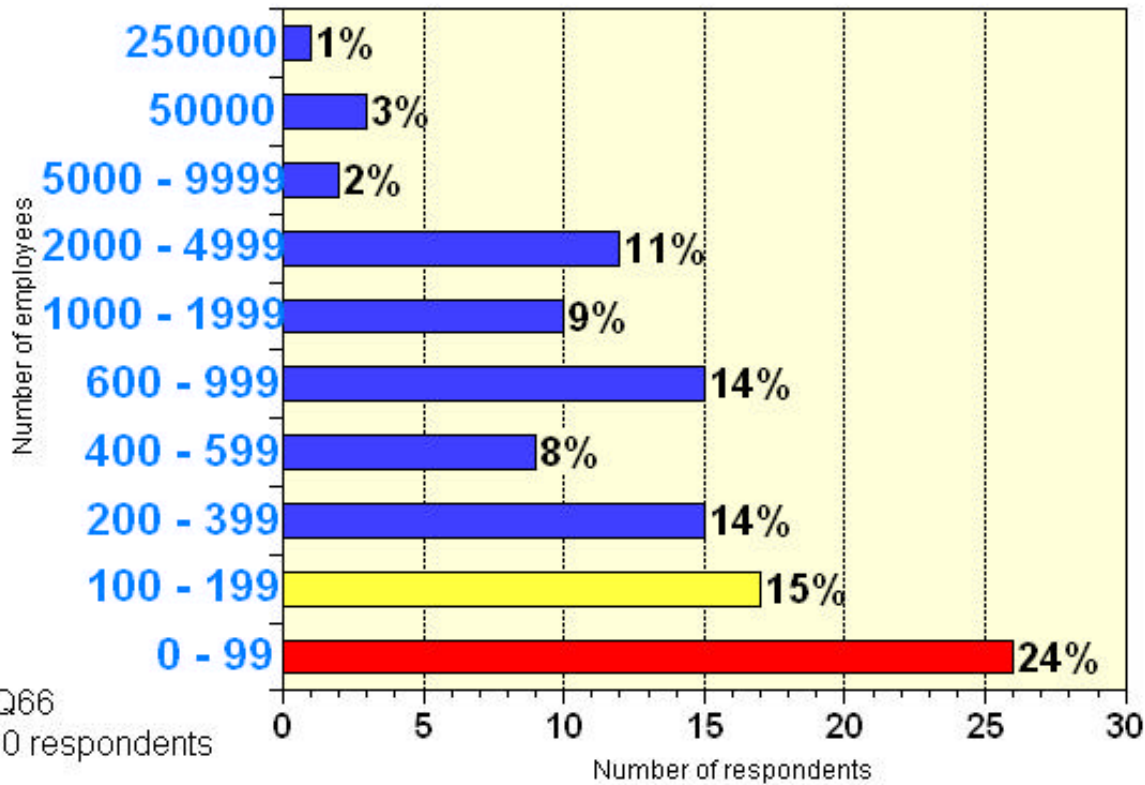
- Sampling hindered by:
 - *lack of participation of all LSEs & CSPs.*
 - *Varying survey responses from NYS zones*
 - *Methodological limitations (Anthrax scare, etc.)*
- n = 111 -> estimation is accurate within ± 9.3 percentage points overall, if random sampling from relevant universe
- These findings should be taken as descriptive of the sample only.

Contents

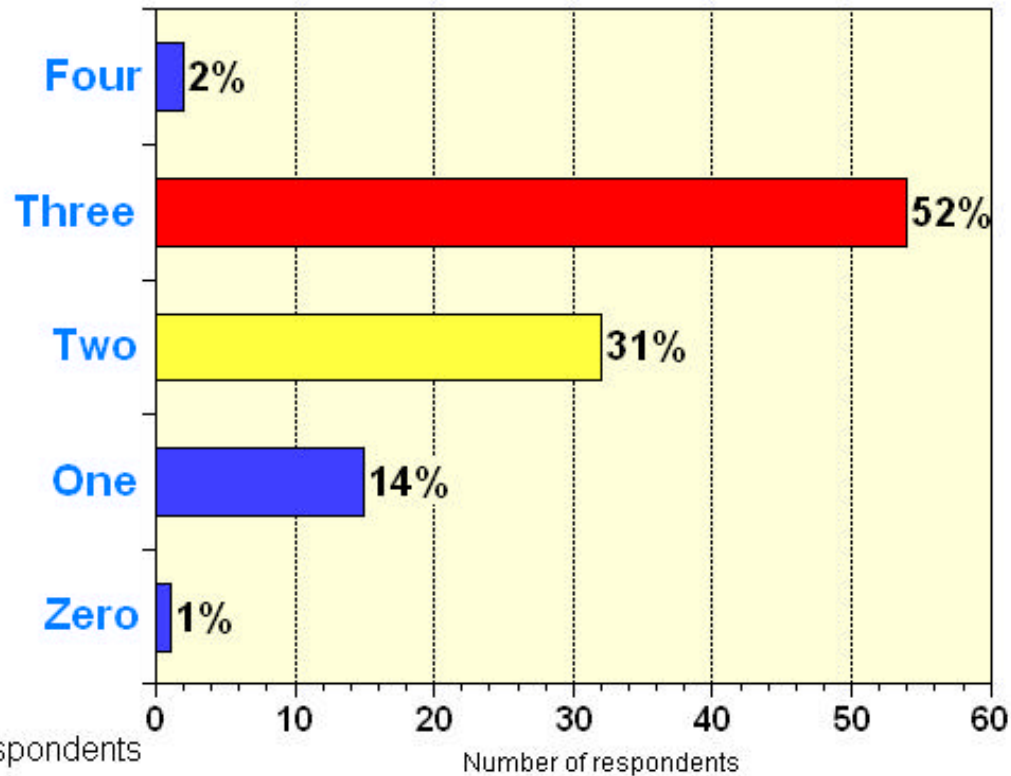
- Who answered the questions?
- Basic information on satisfaction & participation
- Hypotheses tested
- Key drivers of intention to sign up for 2002 DRPs
- Answers to selected survey questions

Who answered the questions?

Q66. Approximately how many full-time employees does your organization have?

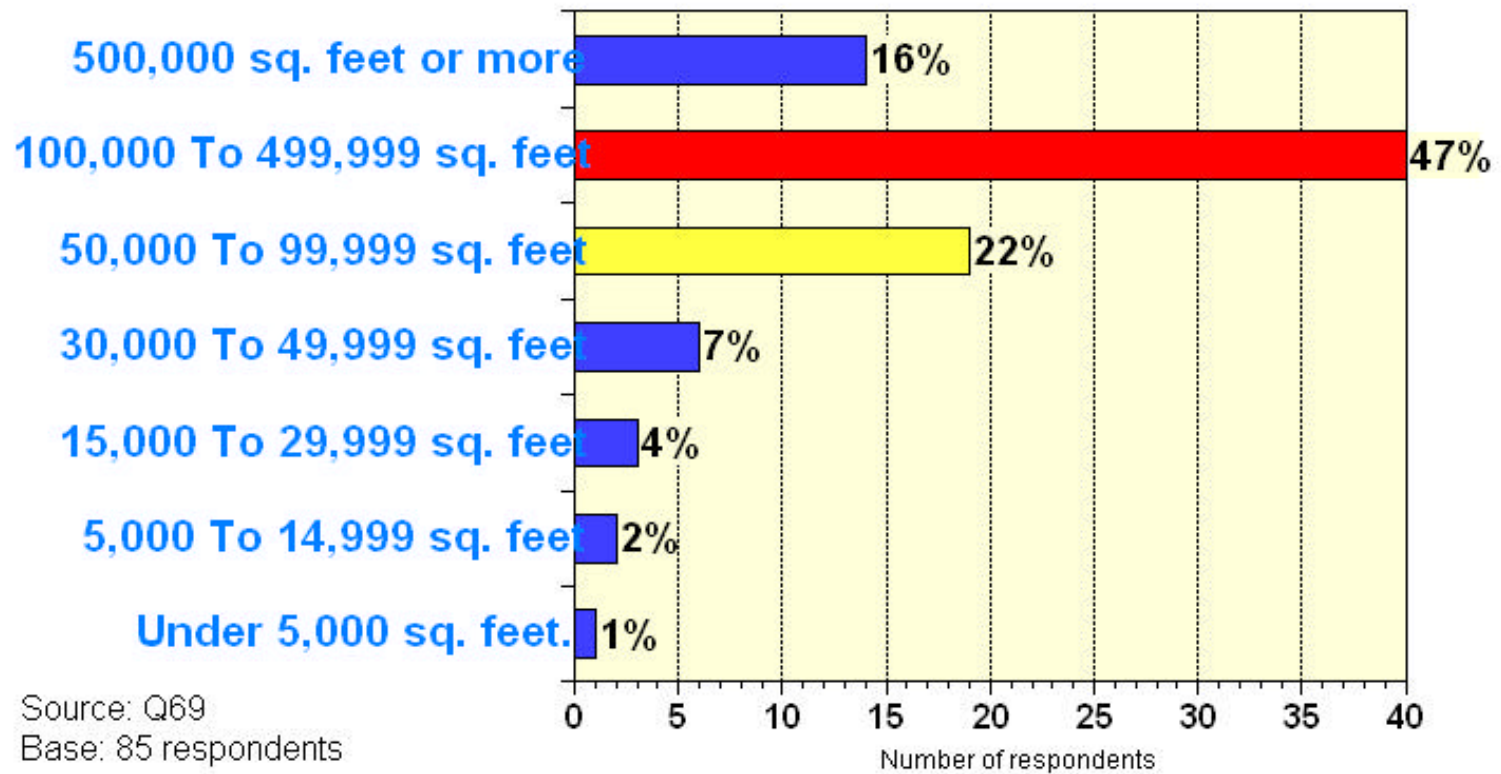


Q67. How many production shifts do you operate in a 24-hour period?

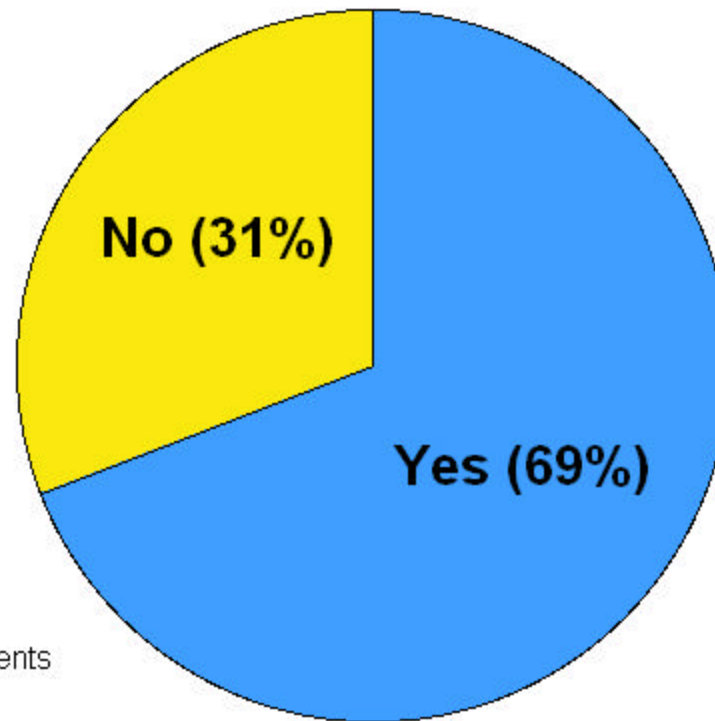


Source: Q67
Base: 104 respondents

Q69. Approximately how large is your main facility

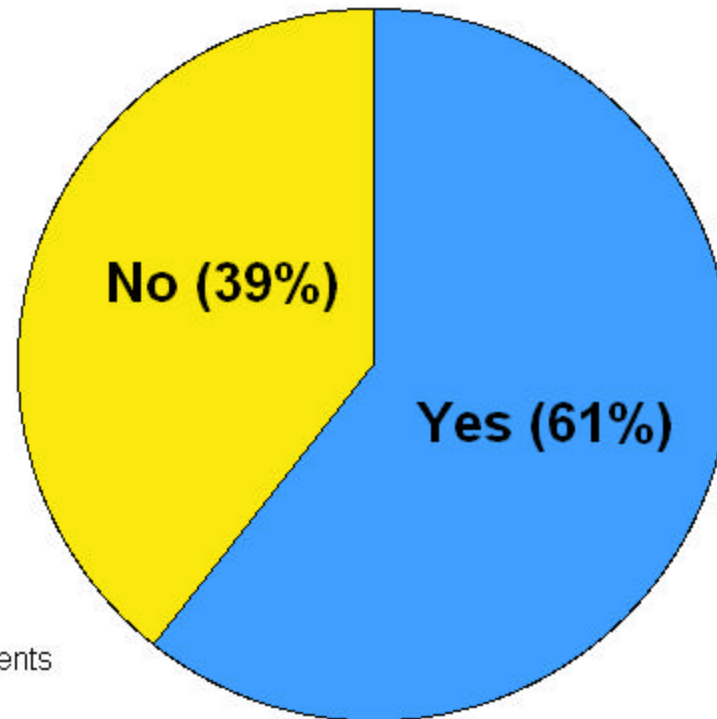


Q74. Is your main facility air-conditioned?



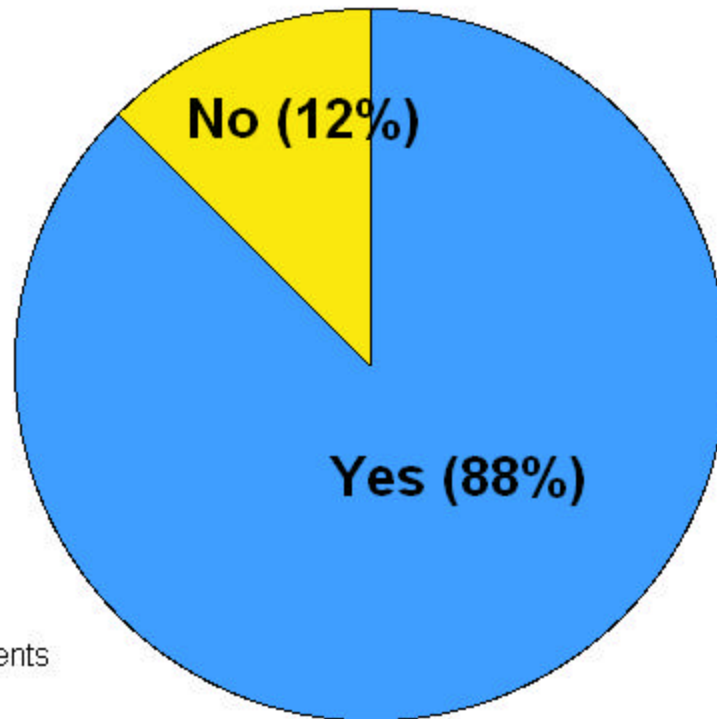
Source: Q74
Base: 110 respondents

Q75. Are building-wide environmental control technologies used in your main facility?



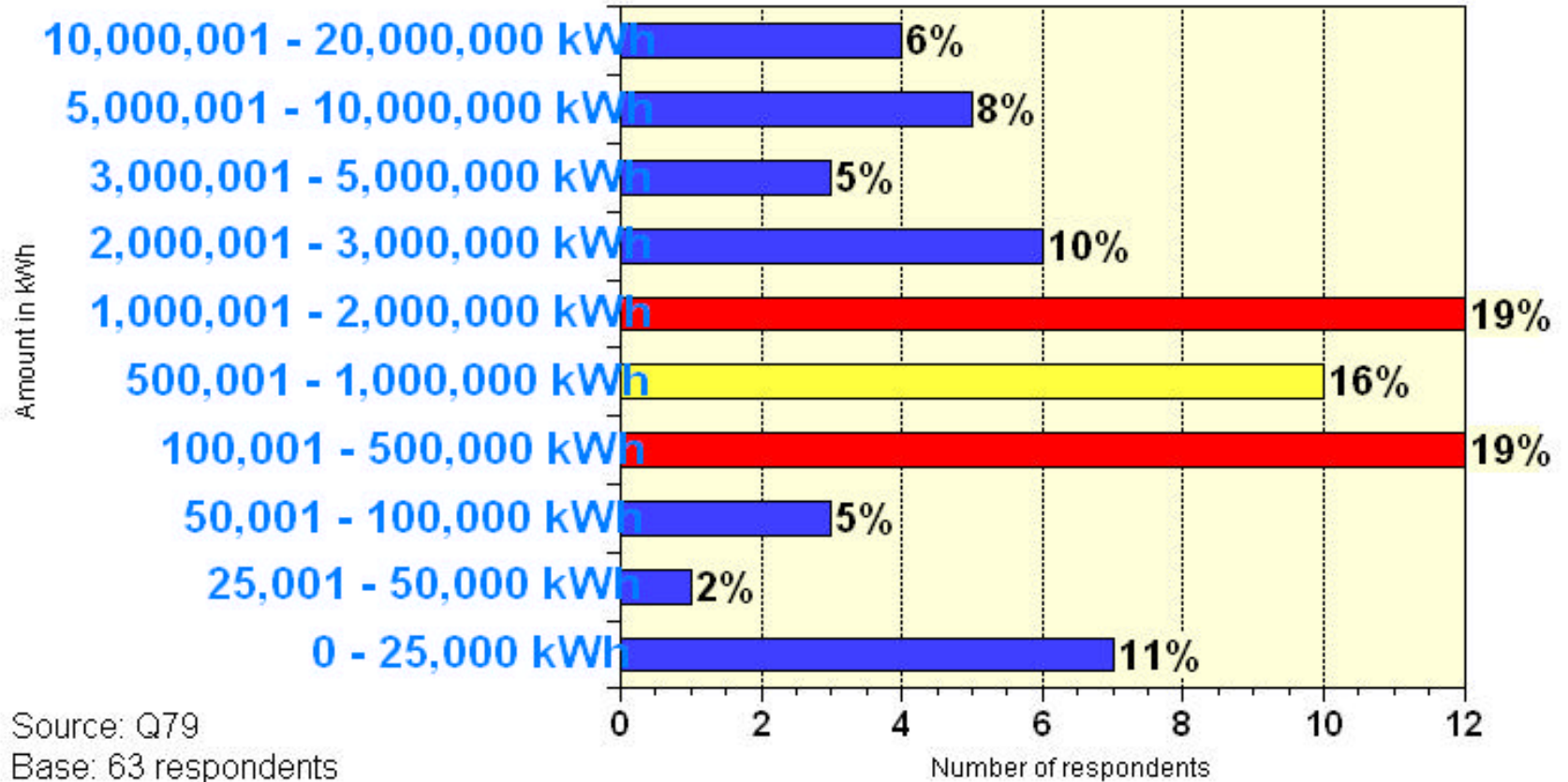
Source: Q75
Base: 109 respondents

Q78. Is your electricity usage recorded with an interval meter?

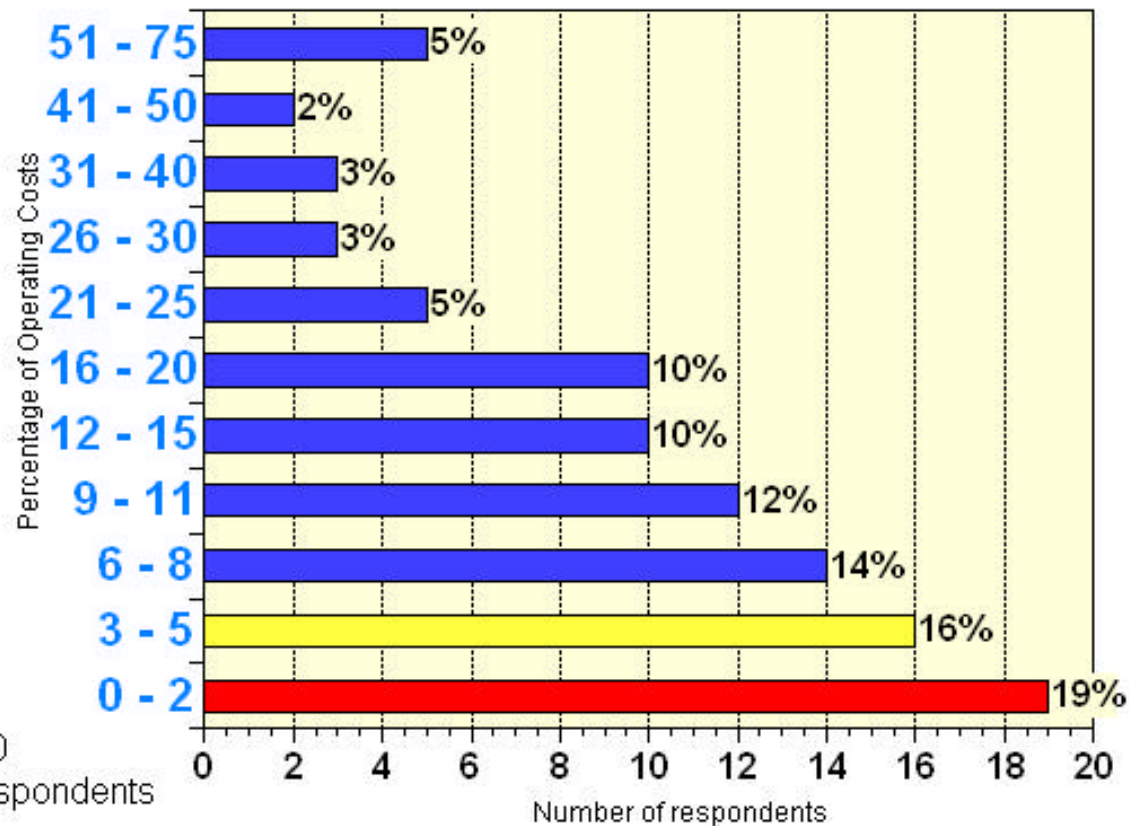


Source: Q78
Base: 105 respondents

Q79. What was your last monthly electricity bill?



Q80. What percent of your organization's total monthly operating cost is due to electricity cost?

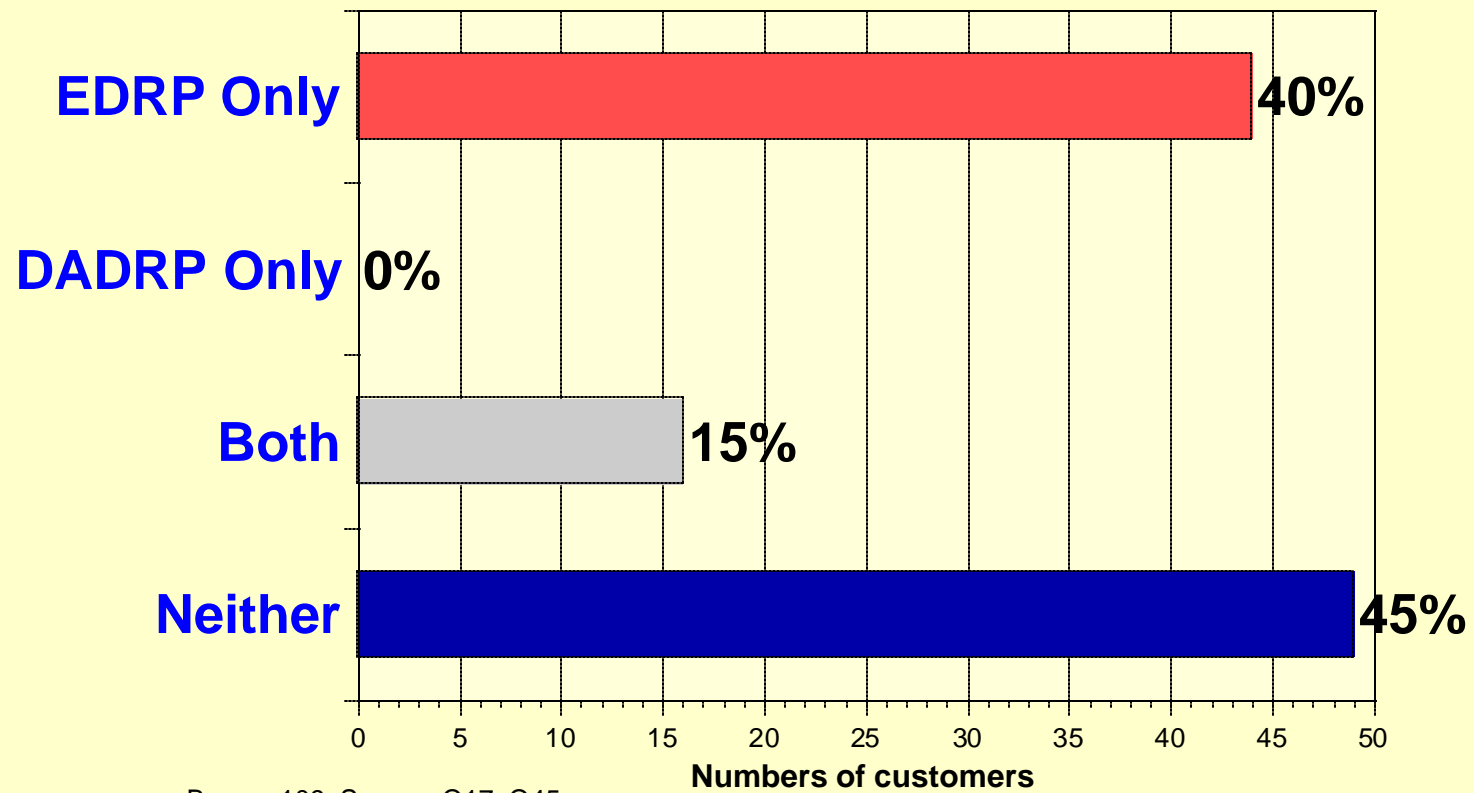


Source: Q80
Base: 99 respondents

Participation: Real & Imagined!

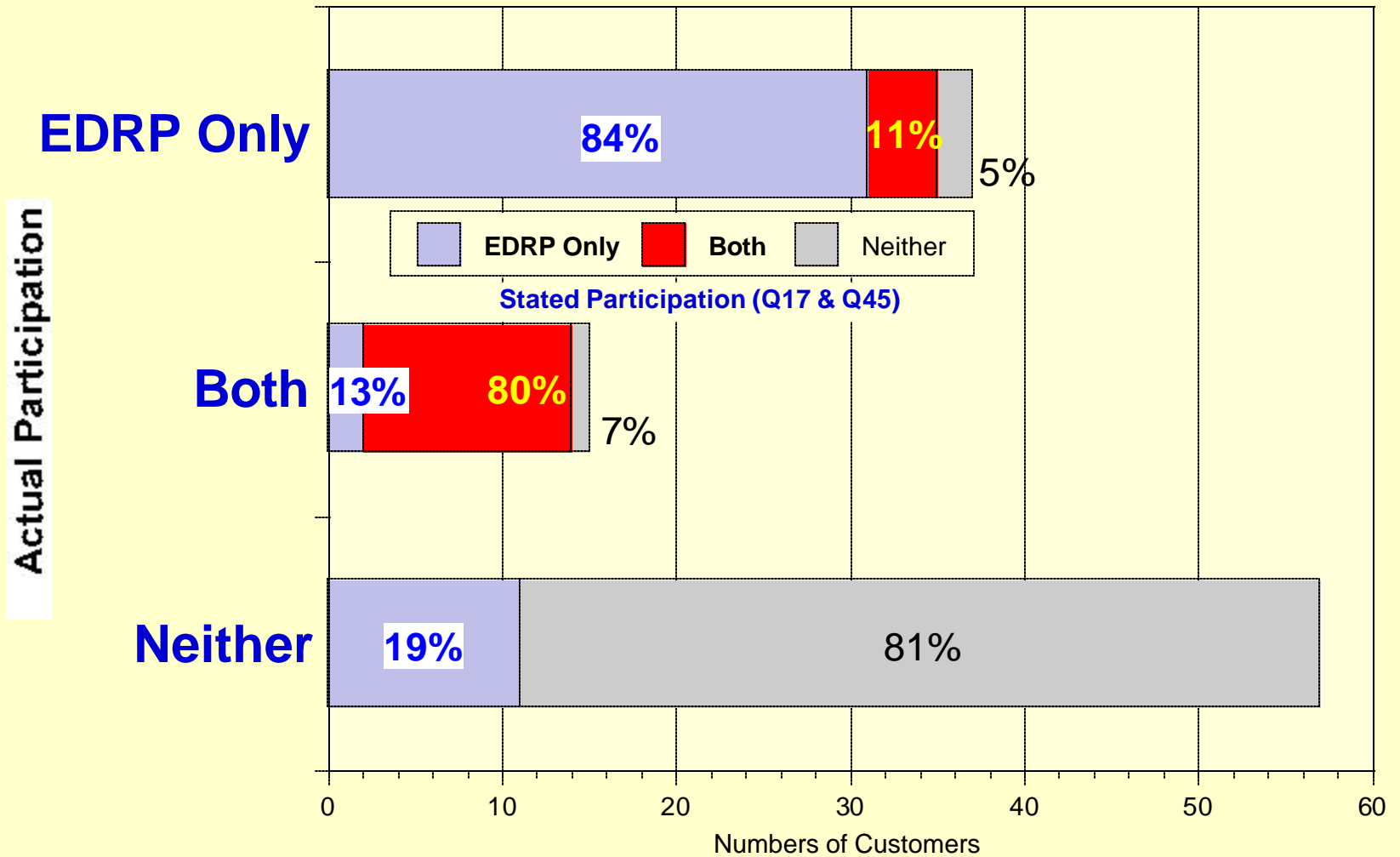
Introductory Information Regarding Satisfaction
and Participation

Stated Participation in DRP Programs



Base = 109, Source: Q17, Q45

Actual and Stated Participation

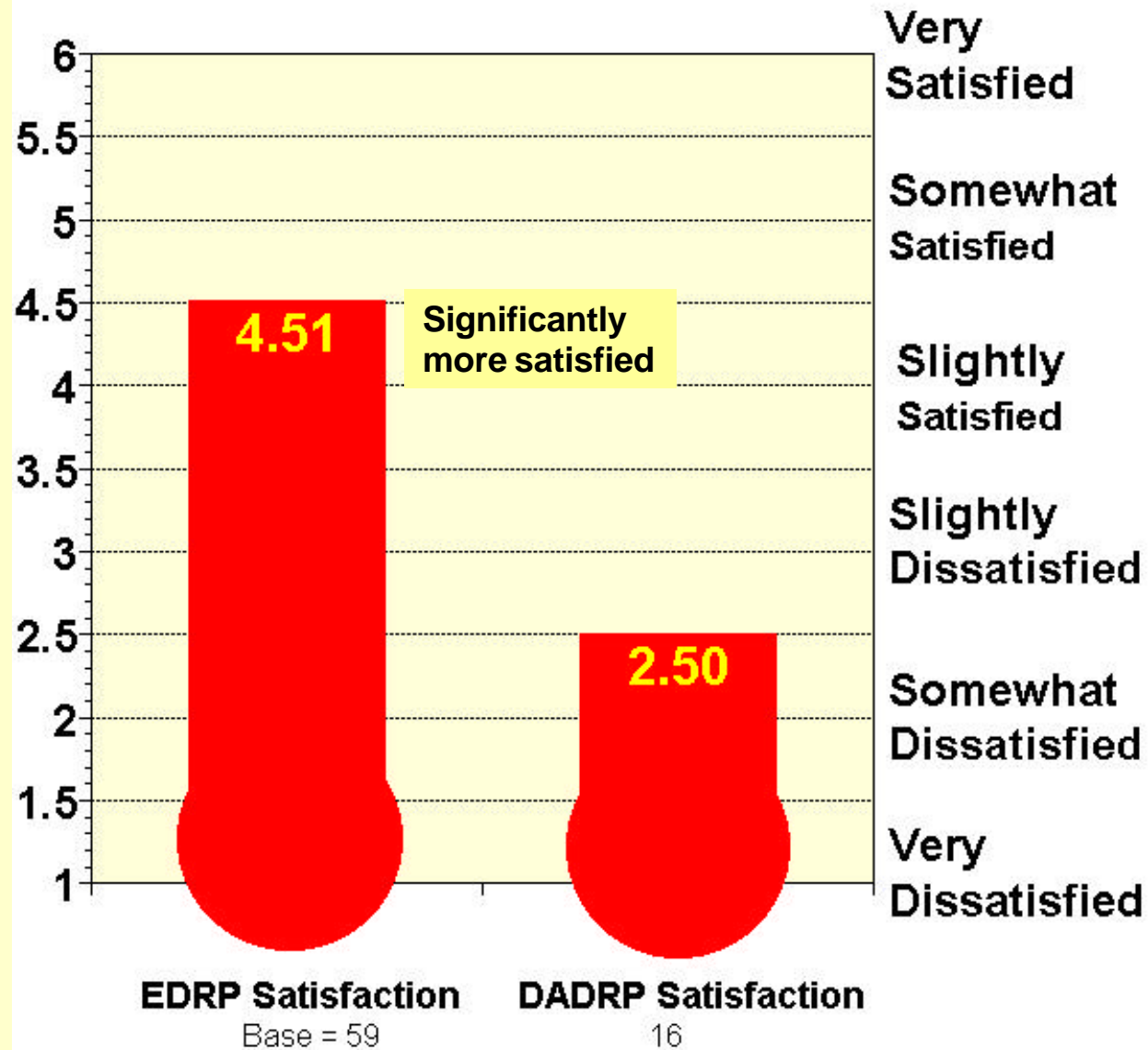


Base = 109, Source: Q17, Q45, NYISO Combined EDRP-STAT & DADRP-STAT

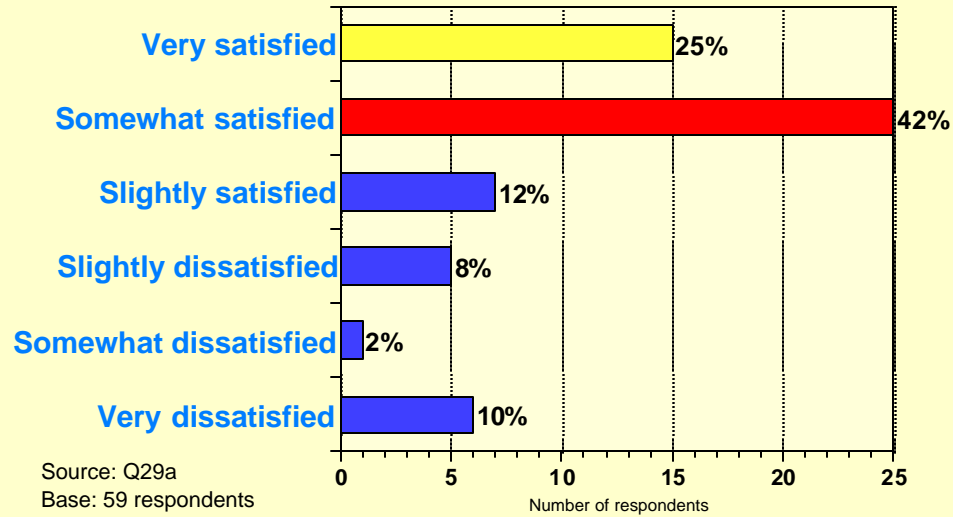
Satisfaction with EDRP & DADRP

Level of Satisfaction & Reasons

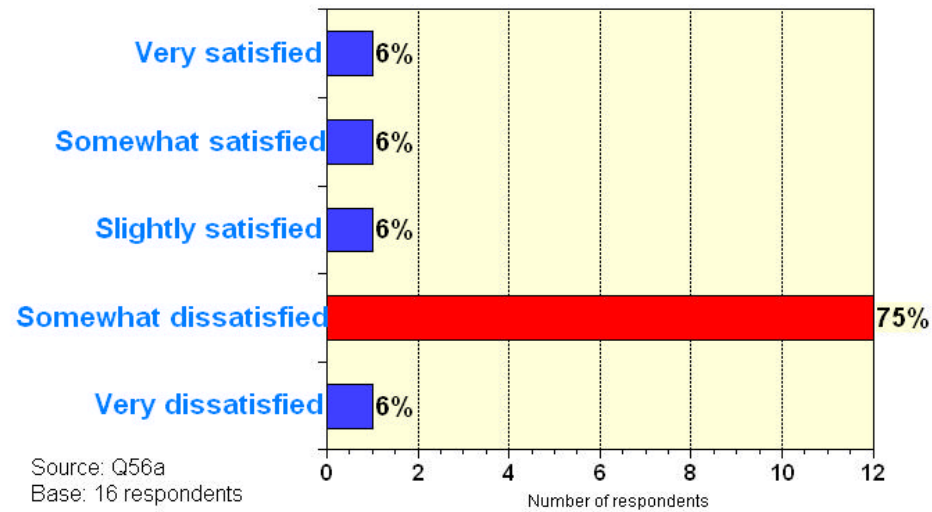
Overall Satisfaction of EDRP & DADRP



Satisfaction with EDRP



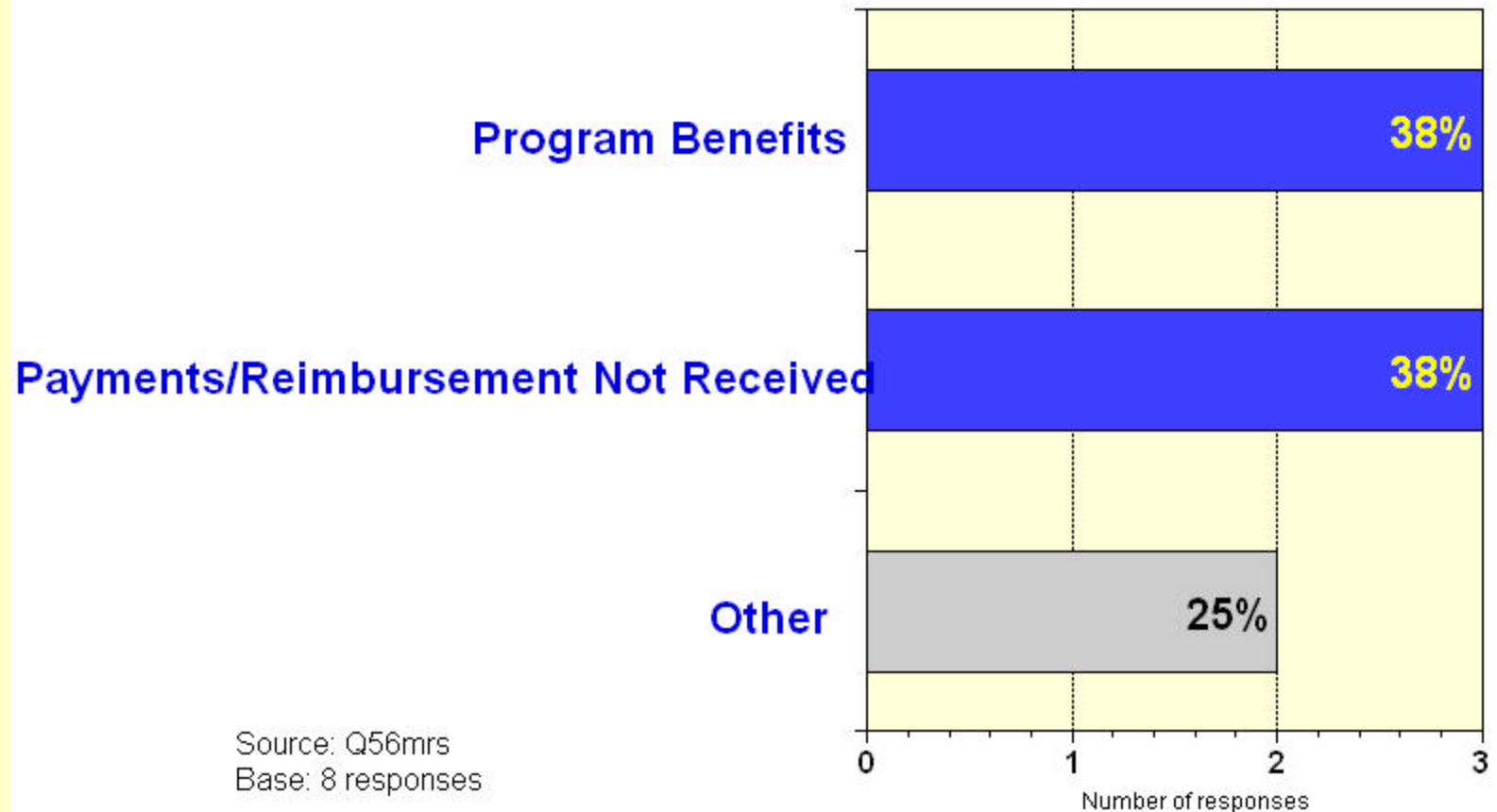
Satisfaction with DADRP



Reasons for EDRP Satisfaction/Dissatisfaction

	Dissatisfied	Satisfied
Not cost effective	3	2
Lack of or Slow feedback	4	5
Unreliable or Confusing notification of event process	0	4
Program Benefits	0	12
Haven't received payment	4	4
Not enough opportunities/incentive for saving	1	3
Financially worthwhile/ received incentives to reduce	0	5
Other	1	8

Reasons for Satisfaction / Dissatisfaction with DADRP

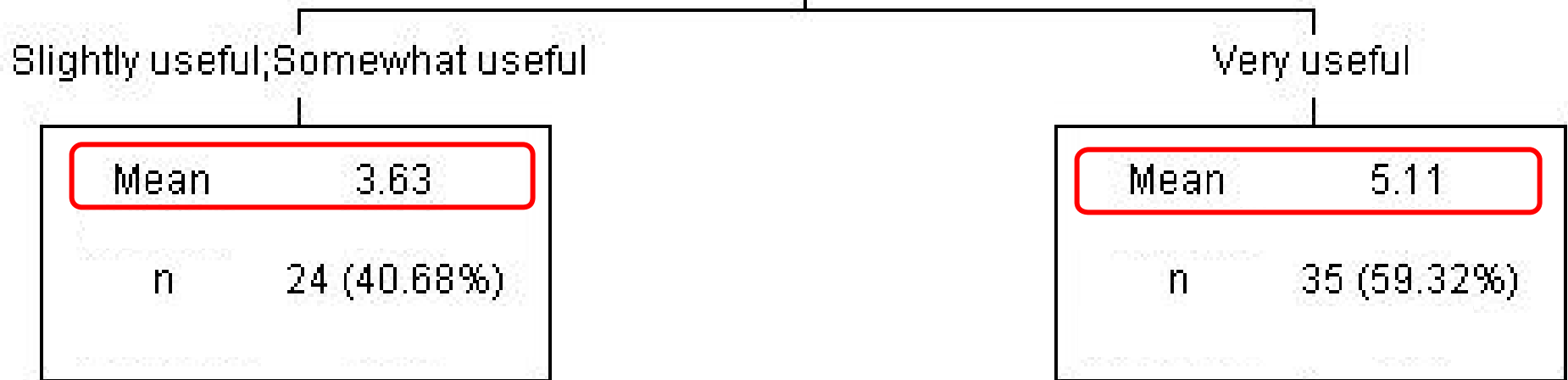


Key drivers of EDRP Satisfaction

Q29a. EDRP Satisfaction Overall

Mean	4.51
n	59 (100.00%)

Q12. Information Usefulness for Understanding EDRP



Not enough respondents to conduct similar analysis for DADRP

Hypothesized Relationships

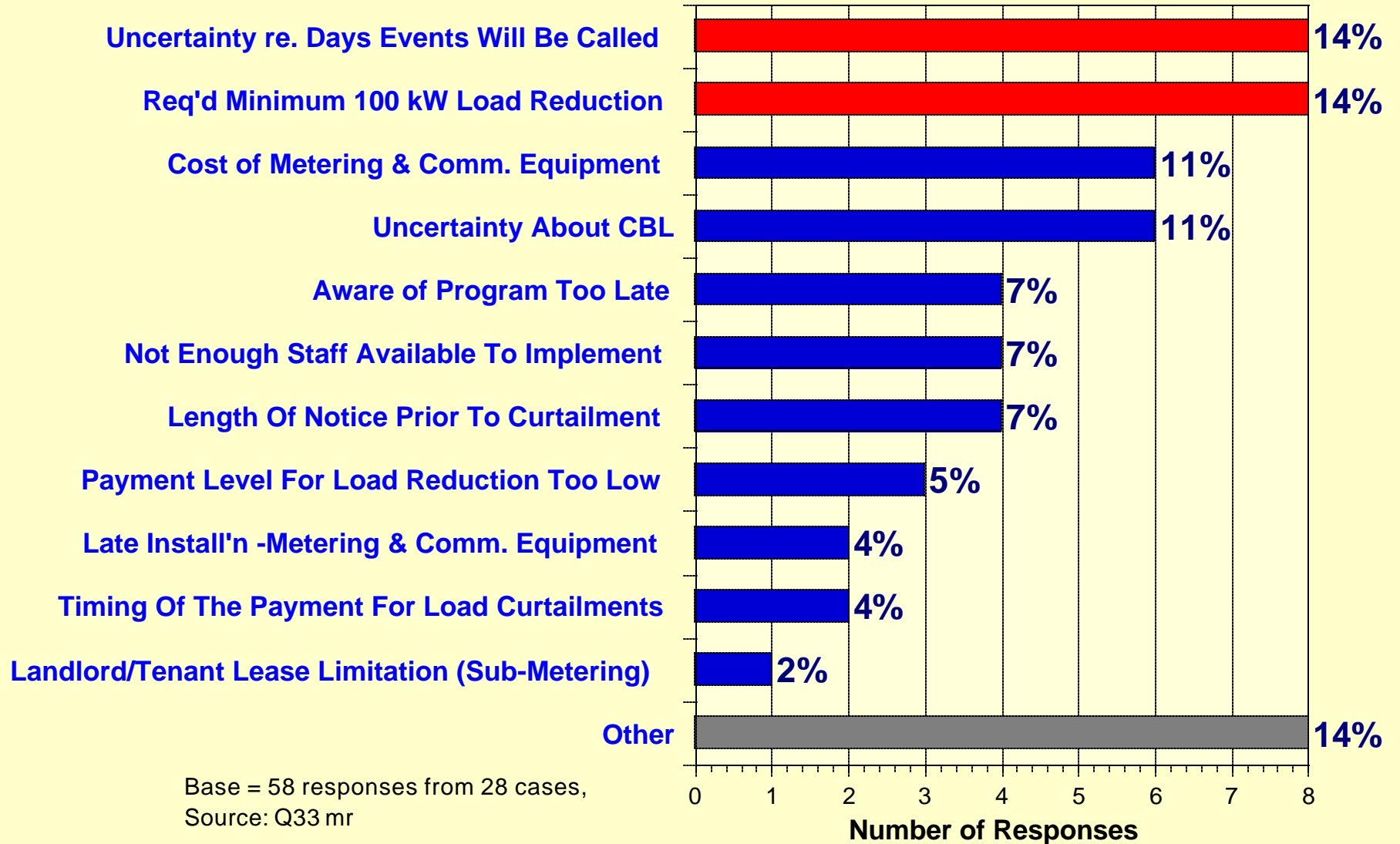


H1: Environmental-based restrictions on DG operation acted as a significant barrier to customer participation in PRL programs.

- H1 **rejected**: No customers indicated that environmental-based restrictions on DG operation acted as a barrier

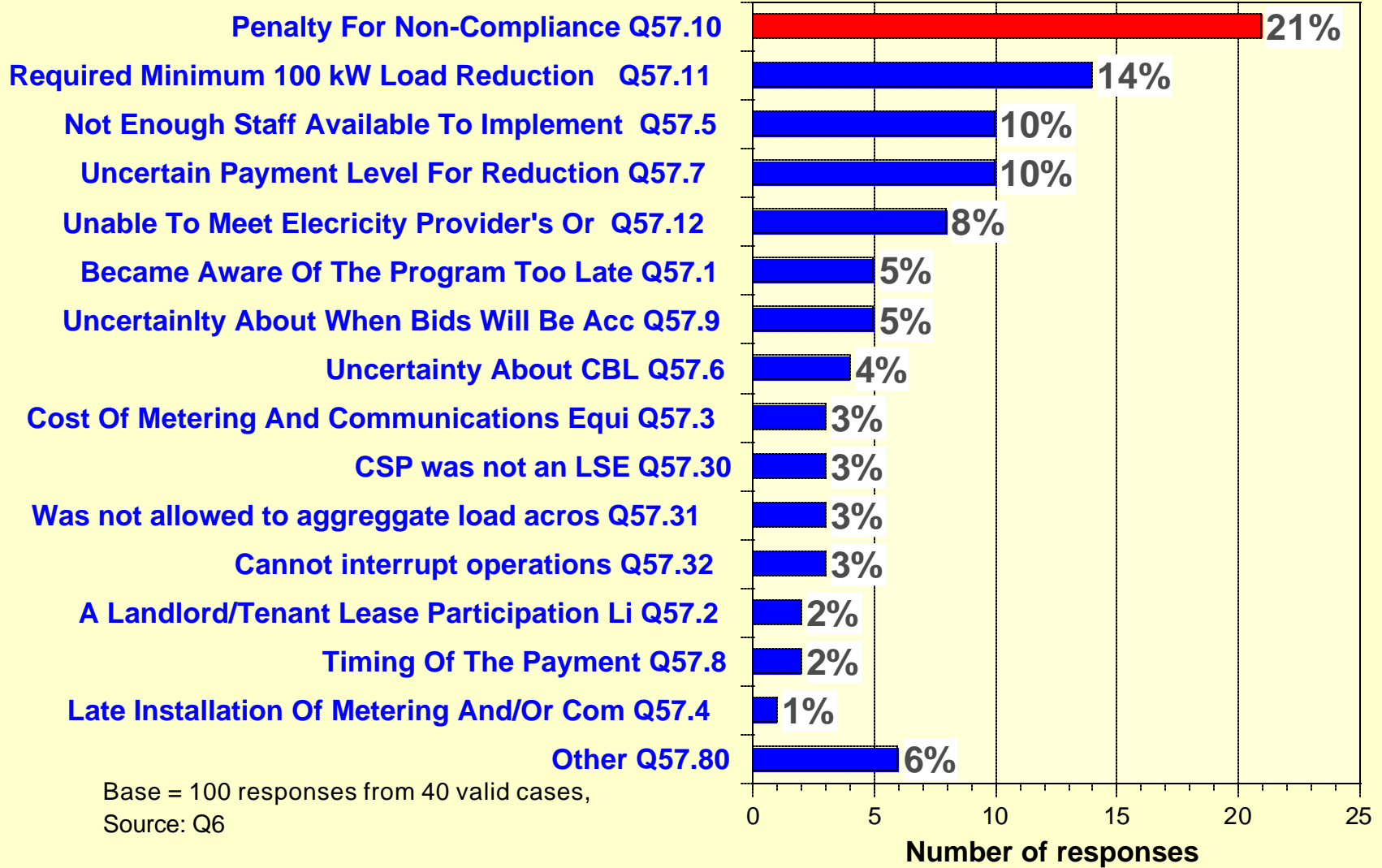


Reasons for Not Signing Up for EDRP





Reasons for Not Signing Up for DADRP





H2: The major deterrent to participant performance was that **CBL did not properly reflect weather sensitive loads.**

- **Very few** customers indicated that anything to do with CBLs influenced their decisions to participate. (See following graph.)
- **No one mentioned weather** in connection with their CBL.

Mentions of CBL as reasons for ...

Q26.3 Reasons for nonparticipation in EDRP Aug 7-10

0%

Q33.7 Reasons for not signing up for EDRP

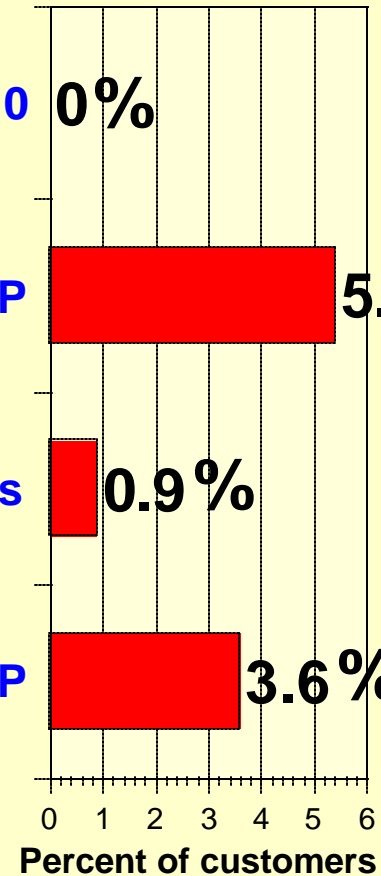
5.4%

Q53.5 Reasons for not submitting any DADRP bids

0.9%

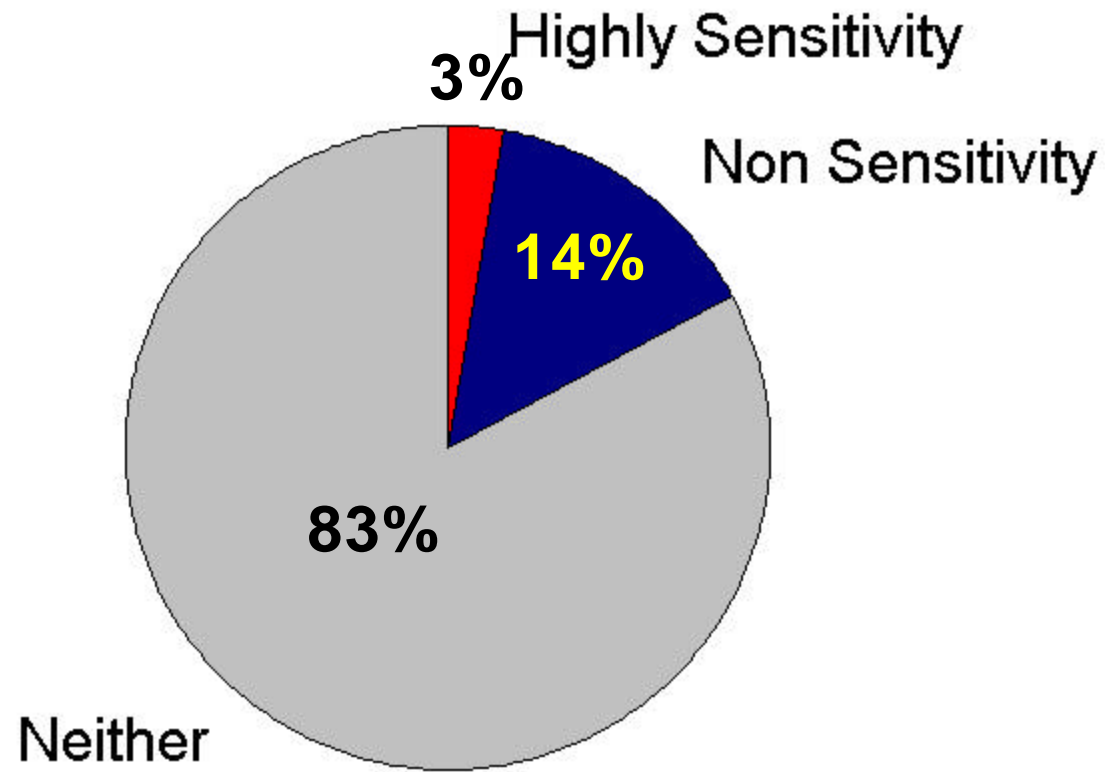
Q57.6 Reasons for not signing up for DADRP

3.6%



Base = 111

Sensitivity to Weather



Base = 111



WEATHER HIGH SENSITIVITY: ALL 4 OF FOLLOWING

- 1) Q. 63 - Major business activity ->
- 2) Q. 74 - if facility is air-conditioned.
- 3) Q. 81 - High Peak period NOON - 3:59 P.M. or 4:00 P.M. - 7:59 P.M.
- 4) Q. 83 - TURN DOWN OR SHUT OFF BANKS OF LIGHTS and/or option 2 - ALTER BUILDING TEMPERATURE and no other options are chosen (option 3 - option 6 Unless option 6 is basically the same type of answer in 1 or 2 above dealing with A/C or lights)

NON-WEATHER SENSITIVE RESPONDENTS: BOTH OF FOLLOWING

- 1) Q. 63 - Major business activity coded as a 2 ->
- 2) Q 83 - HALT MAJOR PRODUCTION PROCESSES and/or option 4 - SHUT DOWN PLANT , then the respondent may be considered non weather sensitive. 3 and/or 4 was chosen.



Highly weather sensitive sectors

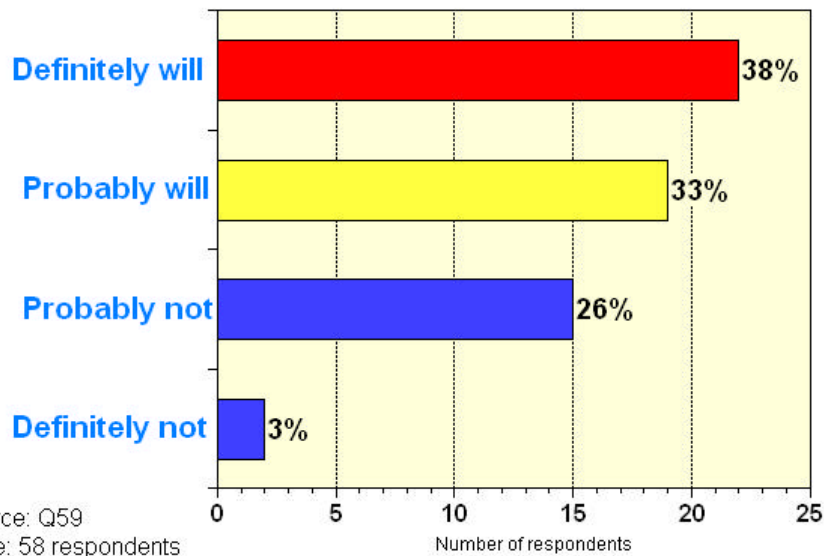
- **PSYCHIATRIC HOSPITAL**
- **WASTEWATER TREATMENT**
- **ADMINISTRATIVE PERSONNEL**
- **EDUCATION**
- **LABS AND RESEARCH**
- **HEALTH CARE**
- **UNIVERSITY**
- **EDUCATION - CHIROPRACTIC DEGREE**
- **RETAIL SHOPPING CENTER**
- **HOSPITAL**
- **DEPARTMENT STORE**
- **BROADCASTING AND PRODUCTION**
- **CORPORATE HEADQUARTERS**
- **HOTEL**
- **RESTAURANT**
- **HEALTH CLUB**



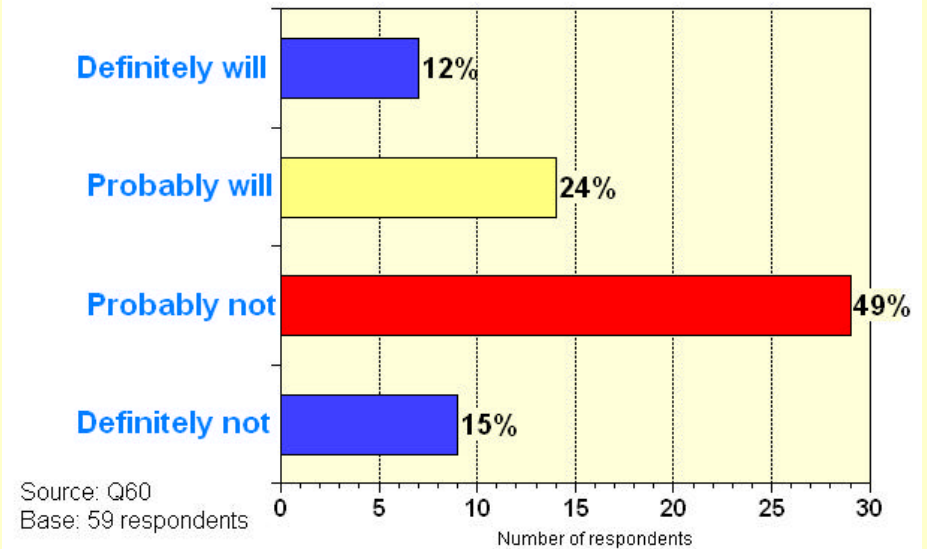
H3: Willingness to participate in NYISO 2001 DRP is indicative of intent to participate in 2002 DRPs.

- **Participants in the 2001 EDRP are significantly more likely to participate in the 2002 EDRP program only or in both DRPs than are non-participants.**
- **Participants in Both 2001 DRPs are significantly more likely to participate in DADRP than participants in only the 2001 EDRP or in Neither 2001 DRP.**

Intention to Sign Up for 2002 EDRP



Intention to Sign Up for 2002 DADRP



Subscription to EDRP in 2001 Drives Intention to Subscribe in 2002

Q59. Likelihood will sign up for 2002 EDRP?

Cat.	%	n
Definitely not	3.45	2
Probably not	25.86	15
Probably will	32.76	19
Definitely will	37.93	22
Total	(100.00)	58

Actual 2001 Participation (NYISO)

EDRP Only;Both

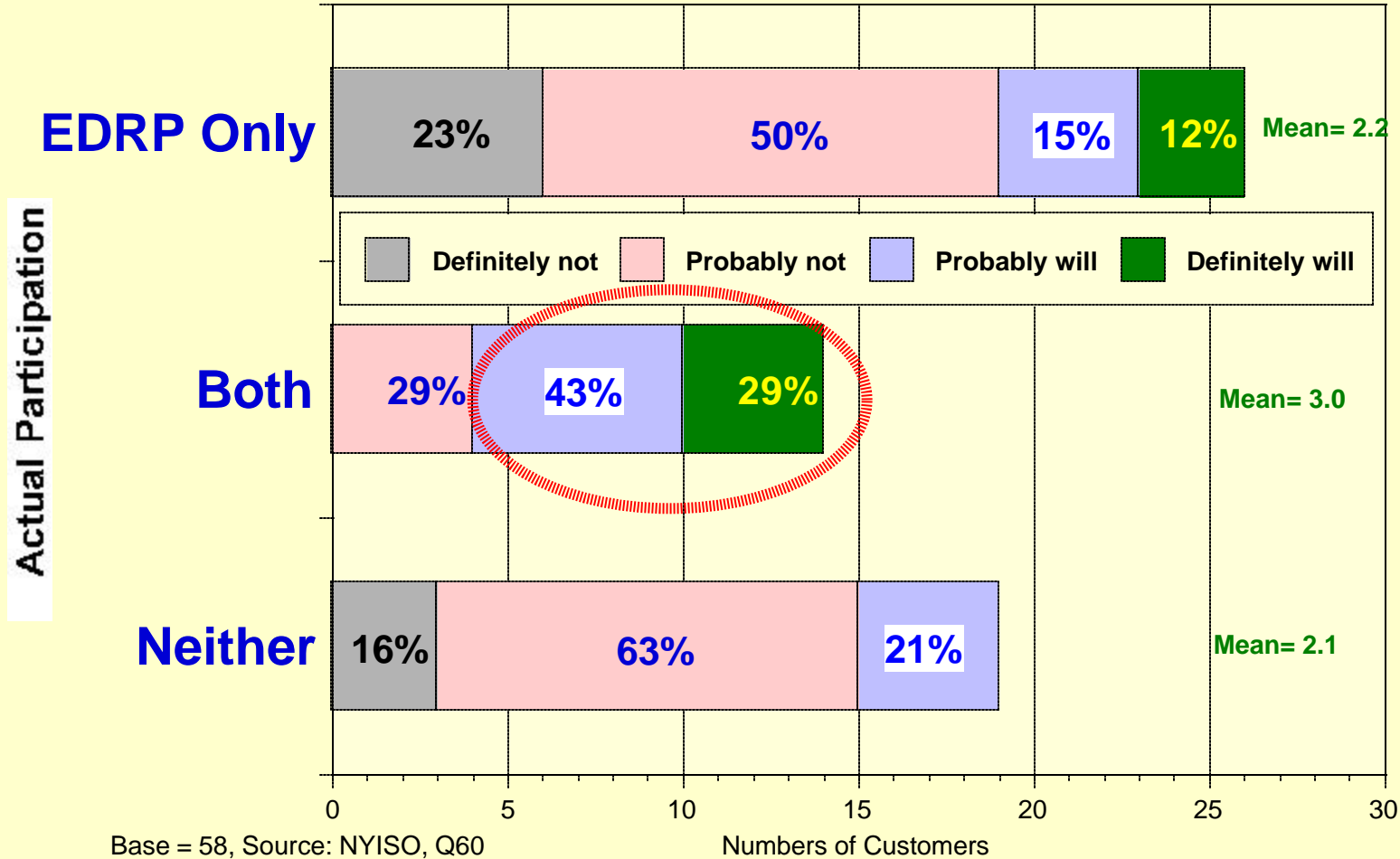
Cat.	%	n
Definitely not	0.00	0
Probably not	15.38	6
Probably will	33.33	13
Definitely will	51.28	20
Total	(67.24)	39

Neither

Cat.	%	n
Definitely not	10.53	2
Probably not	47.37	9
Probably will	31.58	6
Definitely will	10.53	2
Total	(32.76)	19

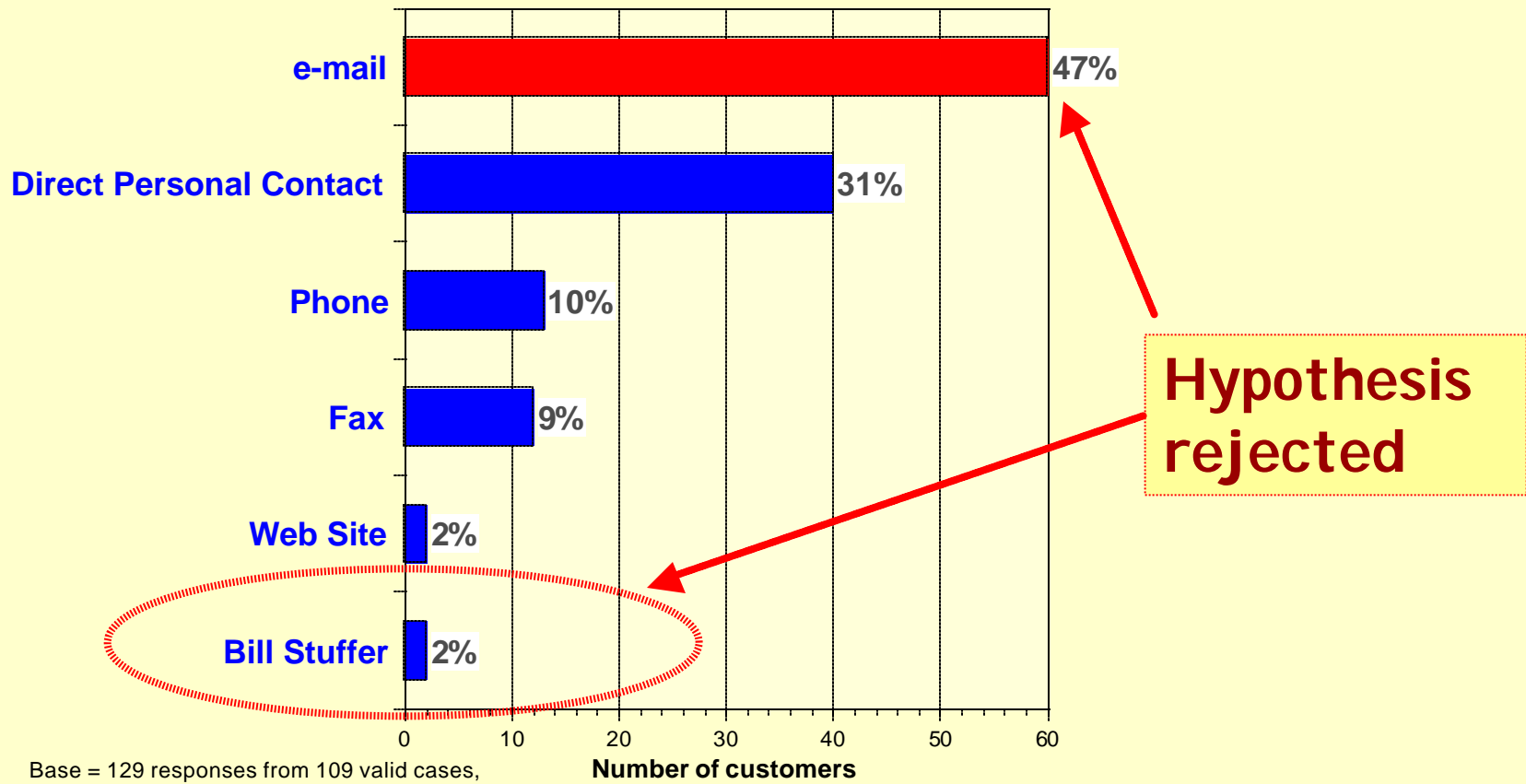
Source: Q59, NYISO participation indicators

H3b: 2001 Actual Participation & 2002 Intended DADRP Participation



H5: The most effective way to get **information** on PRL programs to customers is through a **bill stuffer** or other direct communication.

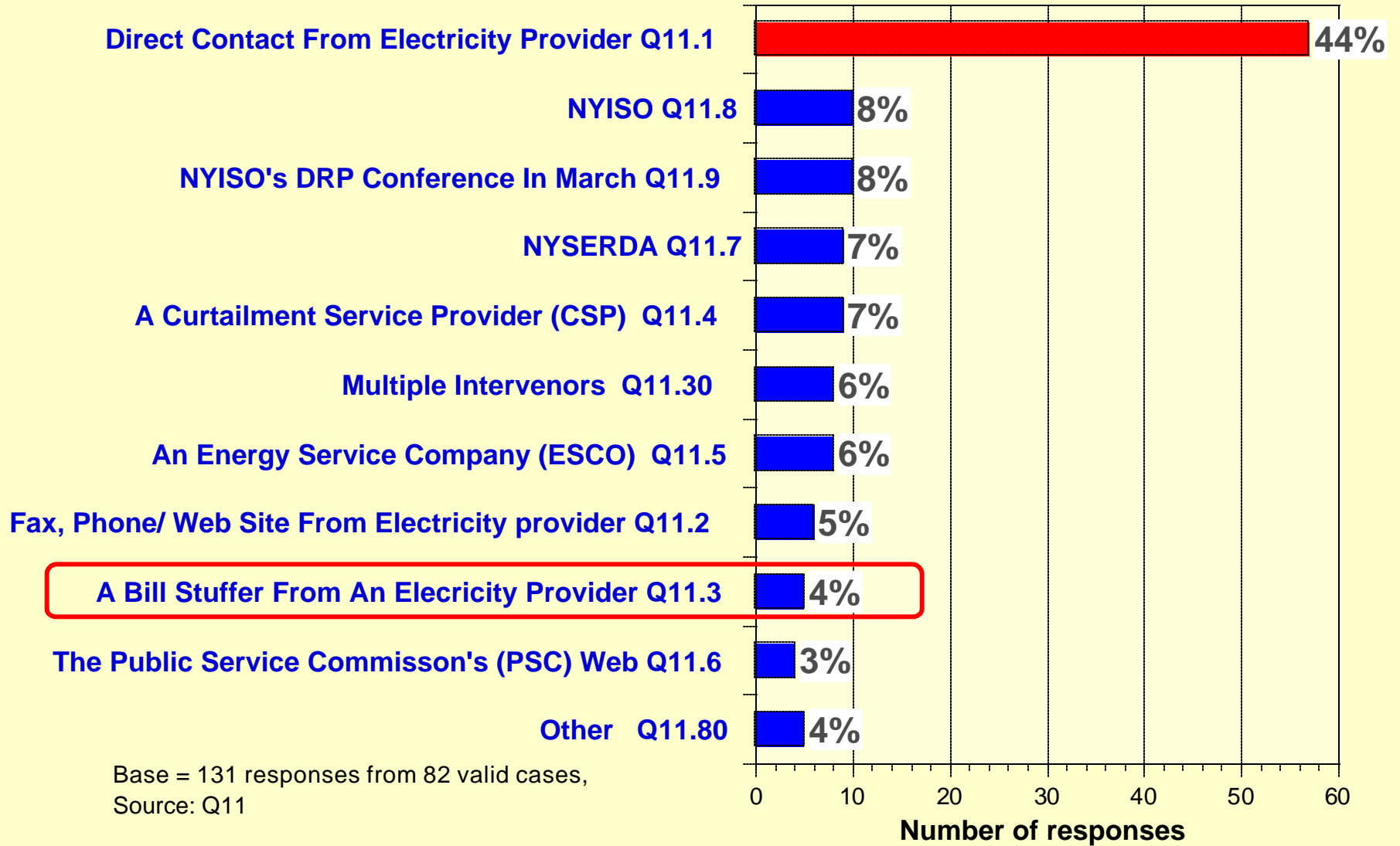
➤ **Most Effective Communication of DRPs**



Base = 129 responses from 109 valid cases,
Source: Q61

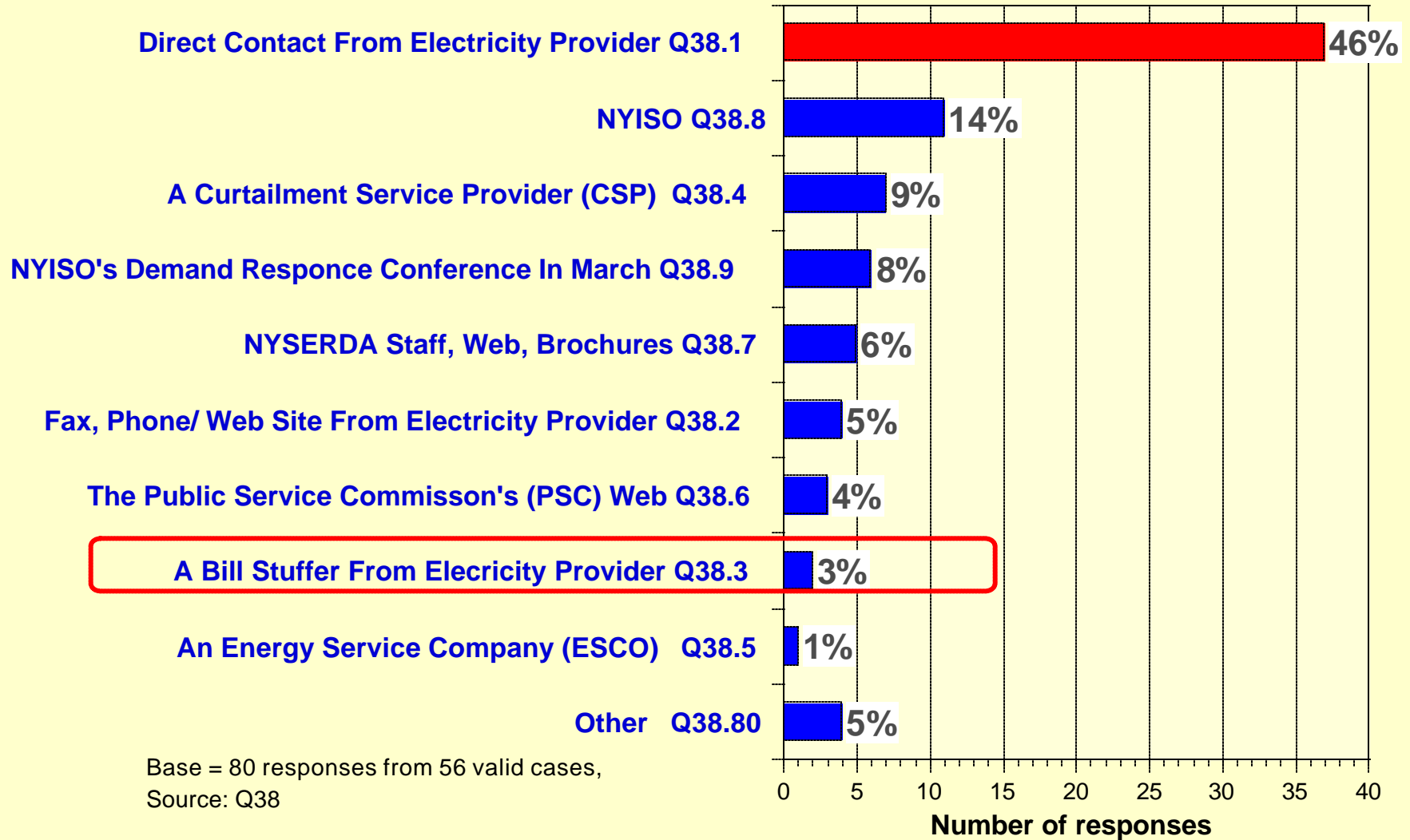


Sources of Information About EDRP



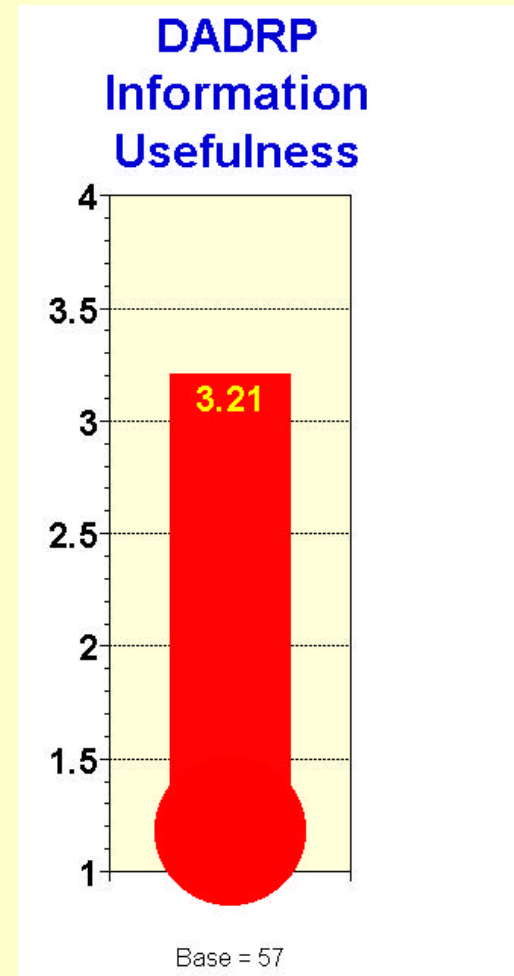
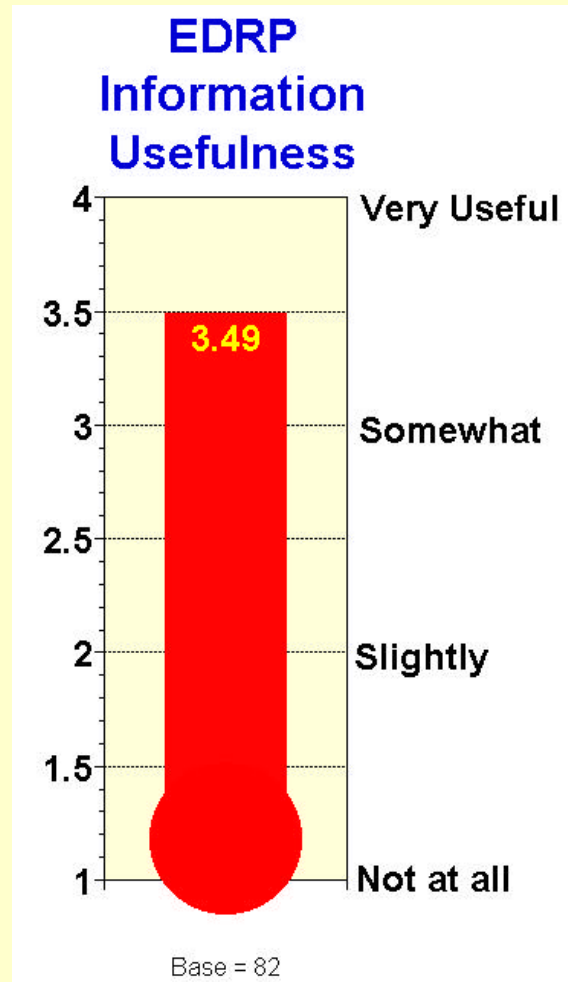


Sources of Information About DADRP



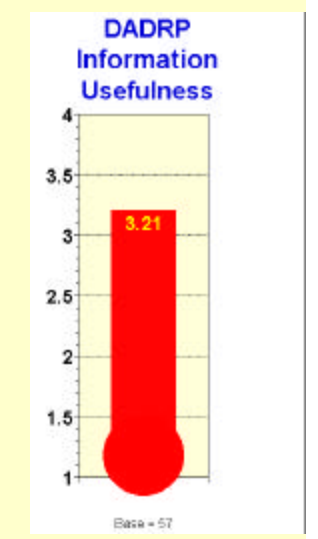
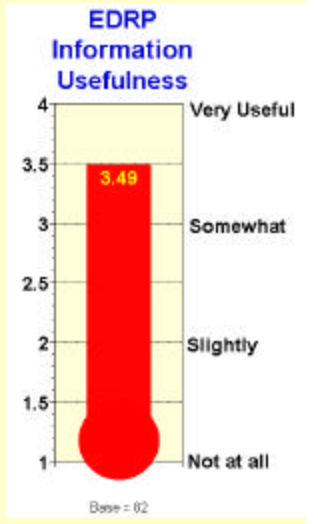
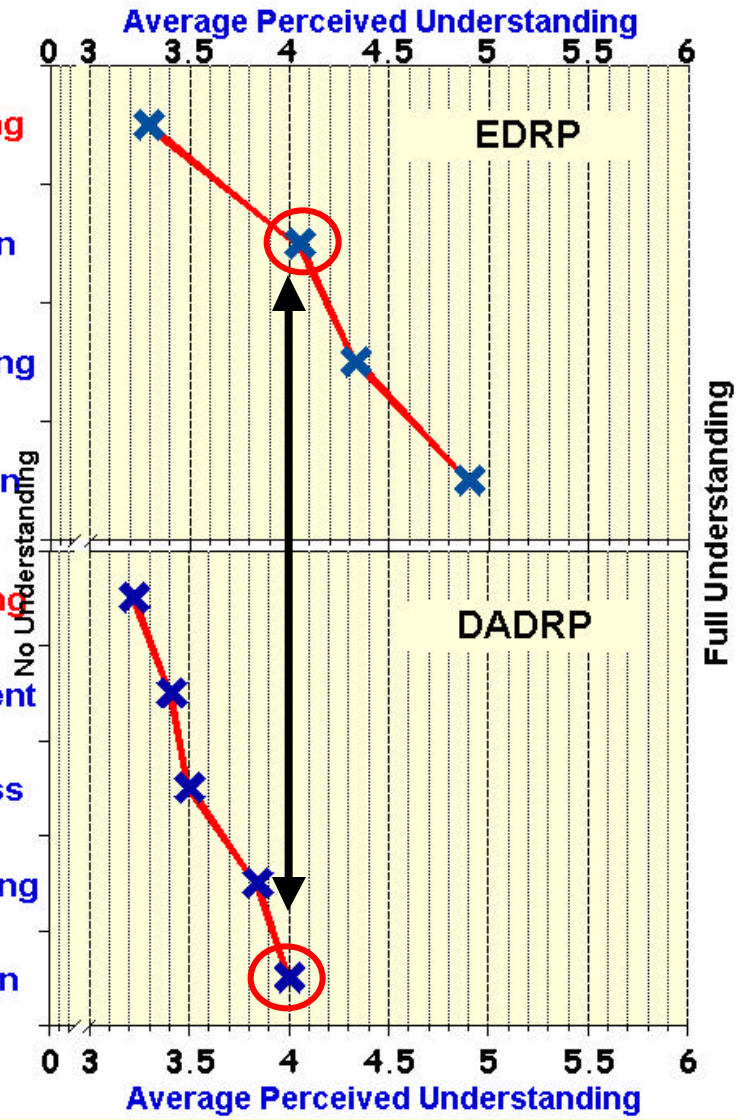
Judged Usefulness of DRP Information

EDRP information perceived to be significantly more useful than DADRP info.

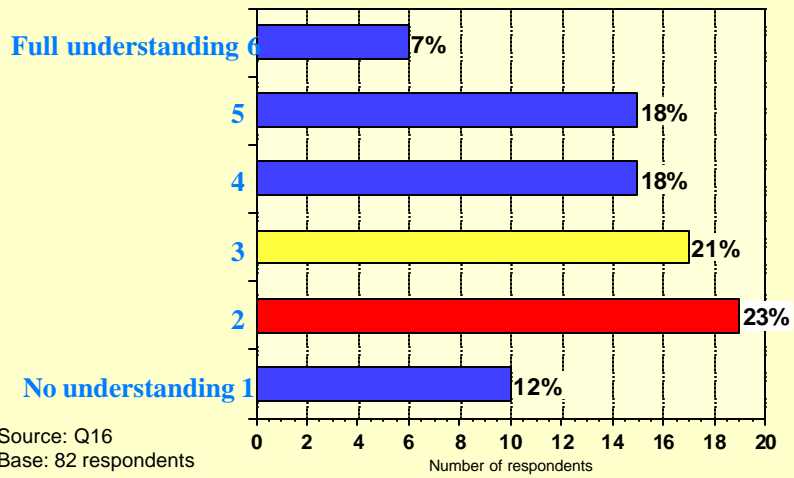


Perceived Understanding of EDRP & DADRP Attributes

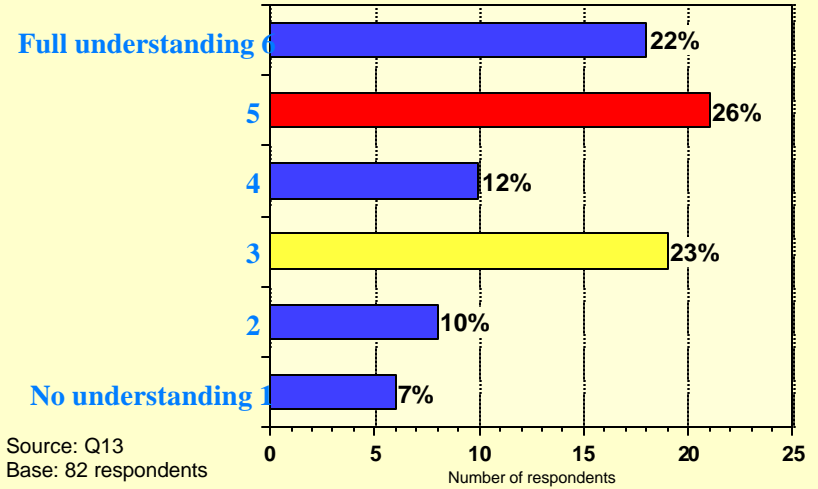
- Q16. Understanding of Payment Time for Curtailing
- Q13. Understanding of CBL Calculation
- Q15. Understanding of Payment Amount for Curtailing
- Q14. Understanding of Timing of Event Notification
- Base = 82
- Q43. Understanding of Payment Time for Curtailing
- Q44. Understanding of Method for Penalty Assessment
- Q41. Understanding of the bidding process
- Q42. Understanding of Payment Amount for Curtailing
- Q40. Understanding of CBL Calculation
- Base = 58



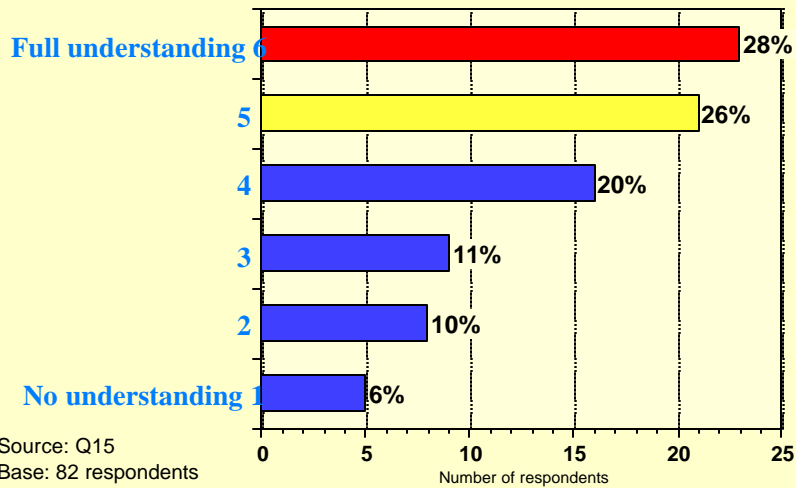
Q16. Understanding of time of payment?



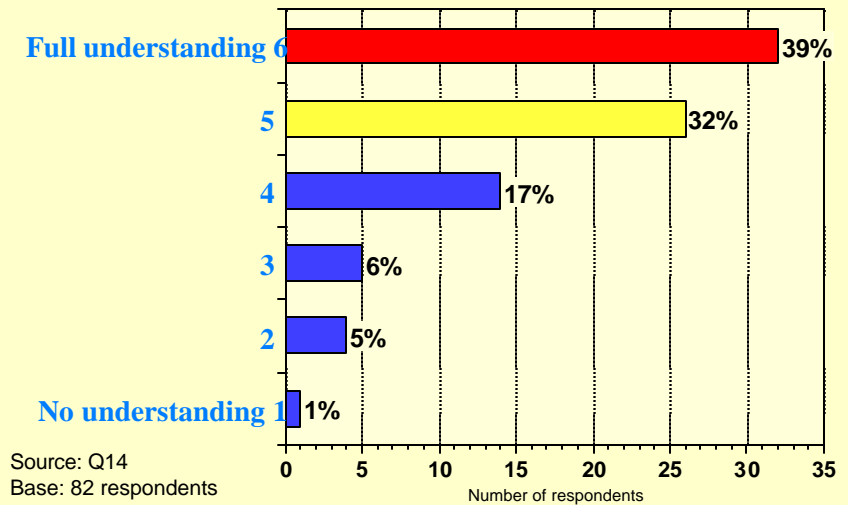
Q13. Understanding of CBL calculation?



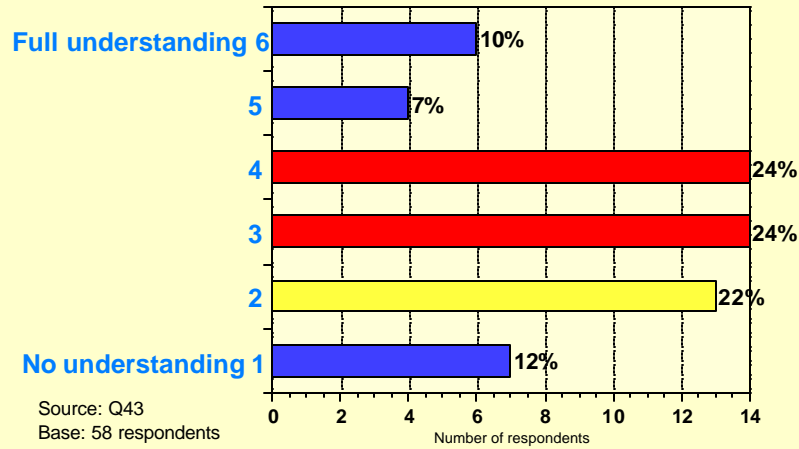
Q15. Understanding of payment?



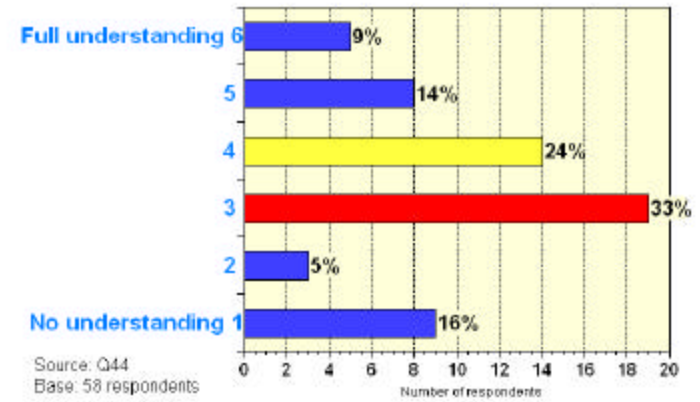
Q14. Understanding of notification?



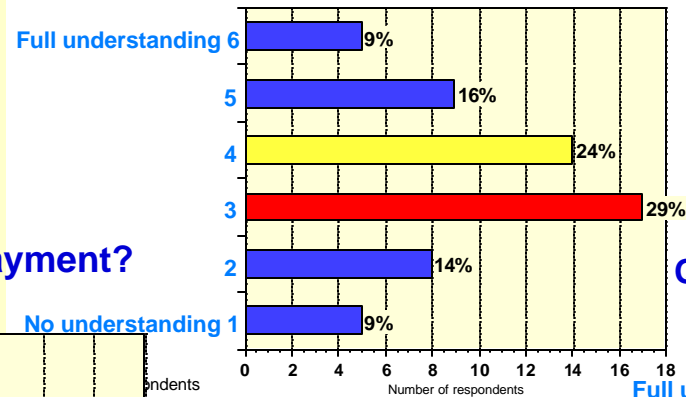
Q43. Understanding of time of payment?



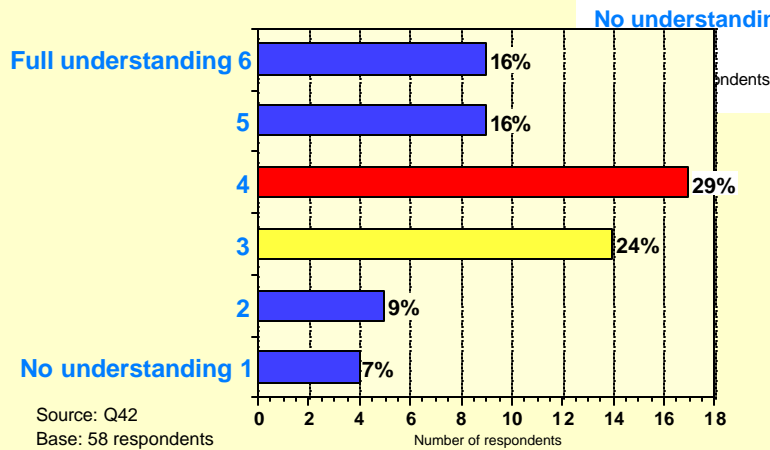
Q44. Understanding of how the non-compliance penalty is assessed.



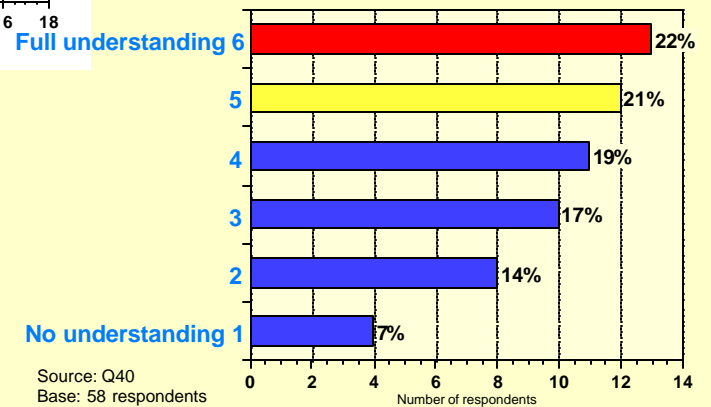
Q41. Understanding of bidding process?



Q42. Understanding of payment?



Q40. Understanding of CBL calculation?

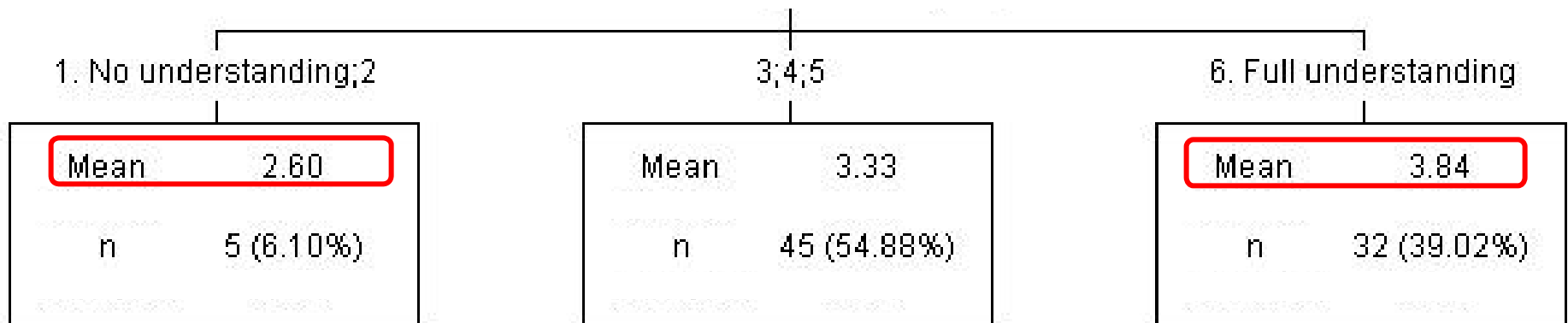


Customers having fuller understanding of the “timing of event notification” judged EDRP information more useful.

Q12. Info. Usefulness for Understanding EDRP?

Mean	3.49
n	82 (100.00%)

Q14. Understanding of Timing of Event Notification



Understanding of Payment Time for Curtailing (Q16) also Significantly Influences Perceived Usefulness of Information

Customers having fuller understanding of the “CBL calculation” judged the DADRP information more useful.

Q39. Info Usefulness for Understanding DADRP?

Mean	3.21
n	57 (100.00%)

Q40. Understanding of CBL Calculation

1. No understanding;2

Mean	2.58
n	12 (21.05%)

3;4;5;6. Full understanding

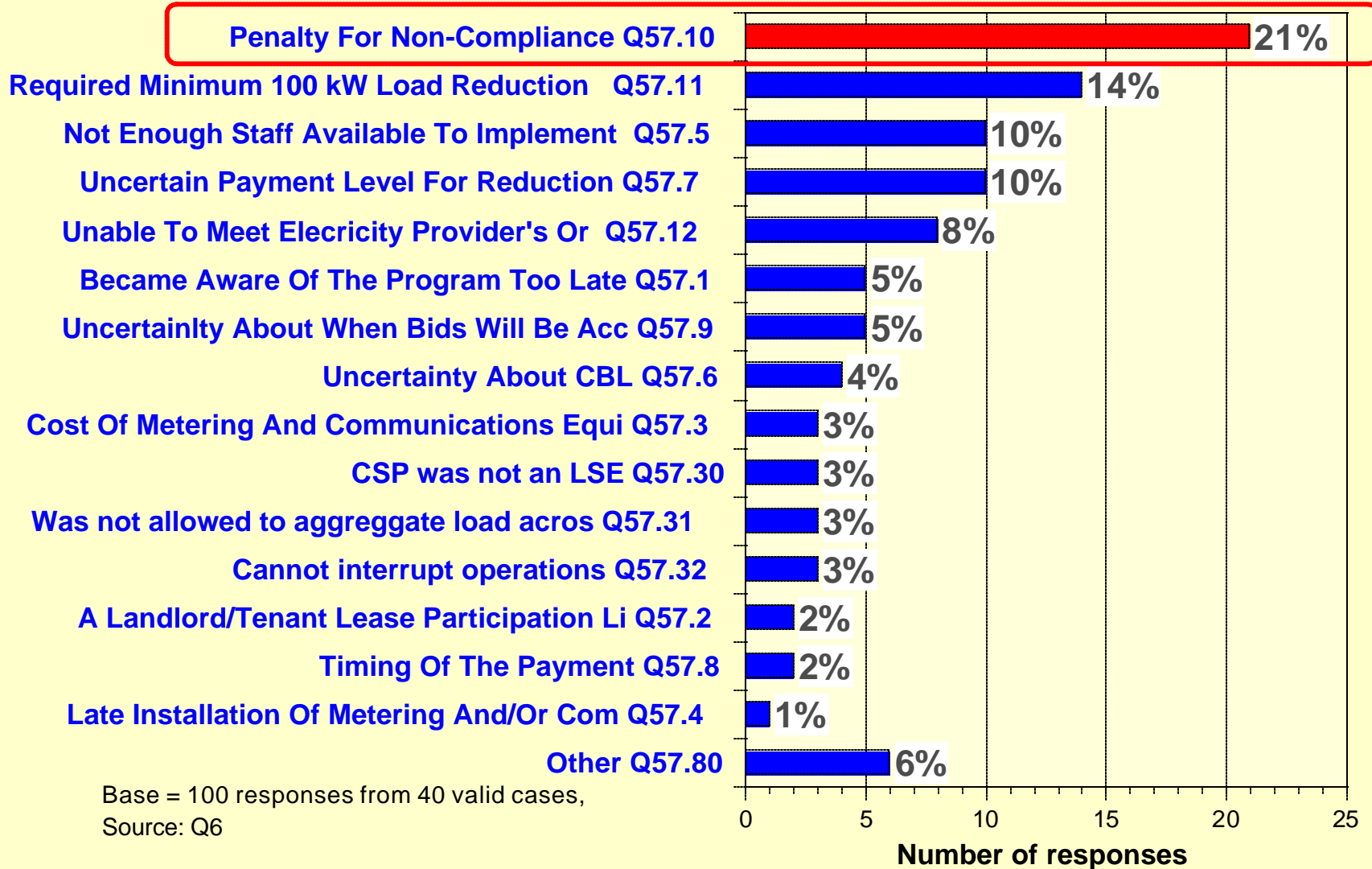
Mean	3.38
n	45 (78.95%)



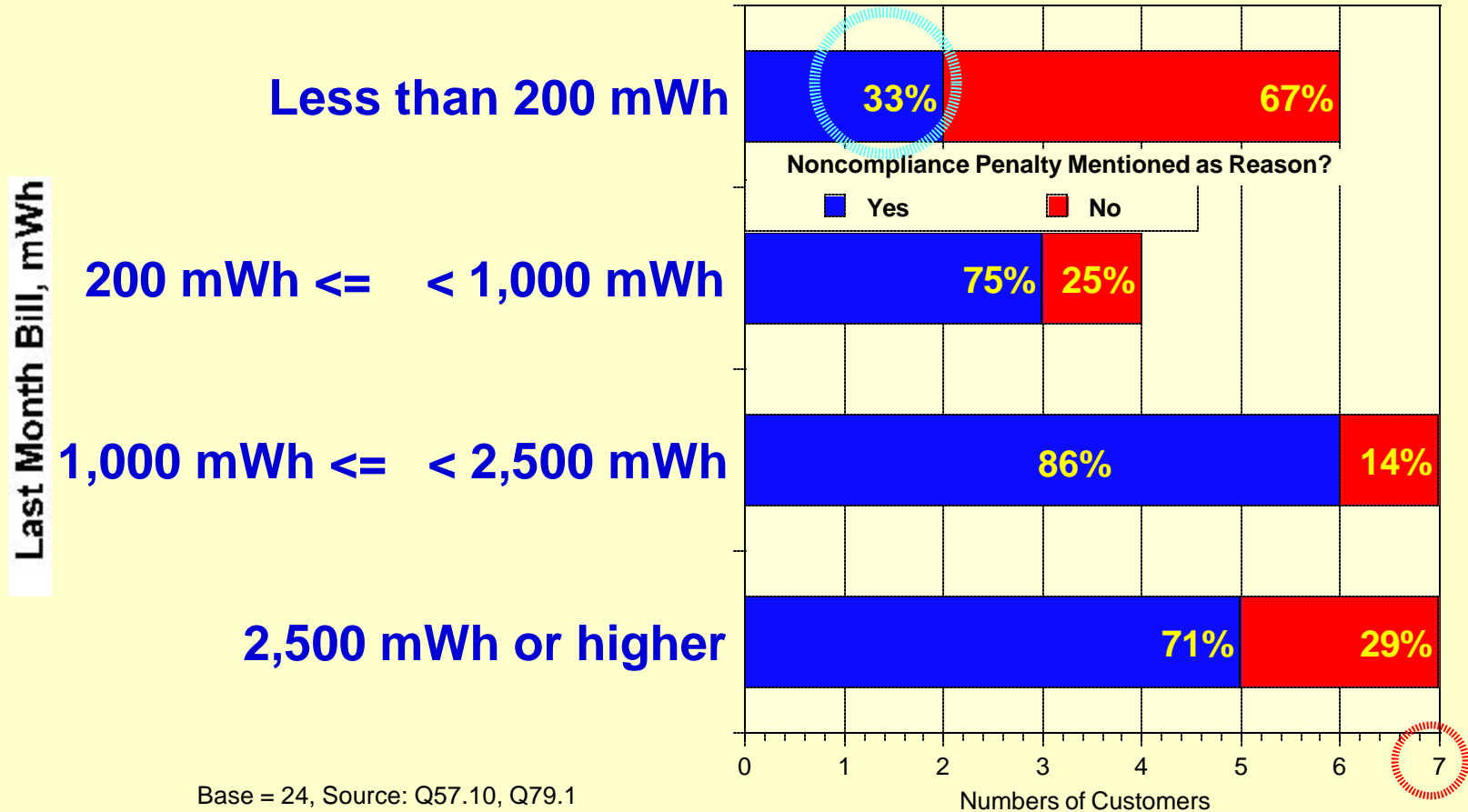
H6: Non-performance penalties are a strong deterrent to program participation of customers of all sizes and situations.

- **Non-performance penalties** were mentioned **most frequently as the strongest deterrent** to participation in DADRP.
- This reason tended to be given less frequently by those organizations using less than 200 mWh the month before the survey.

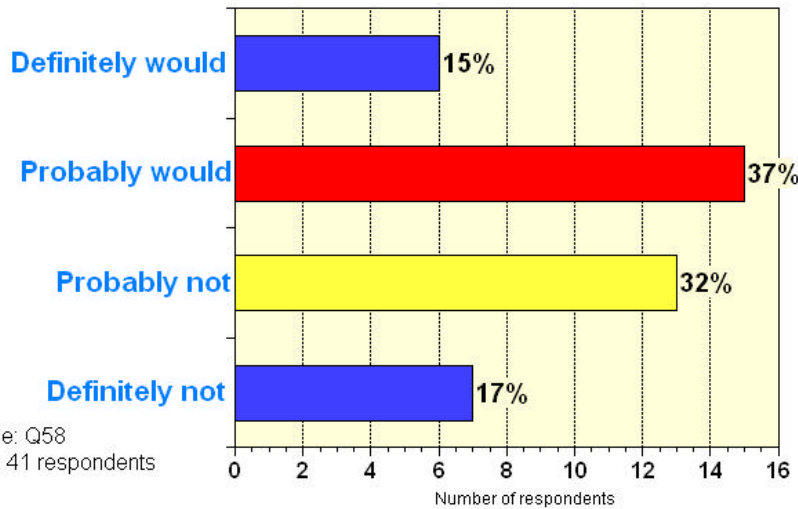
Reasons for Not Signing Up for DADRP



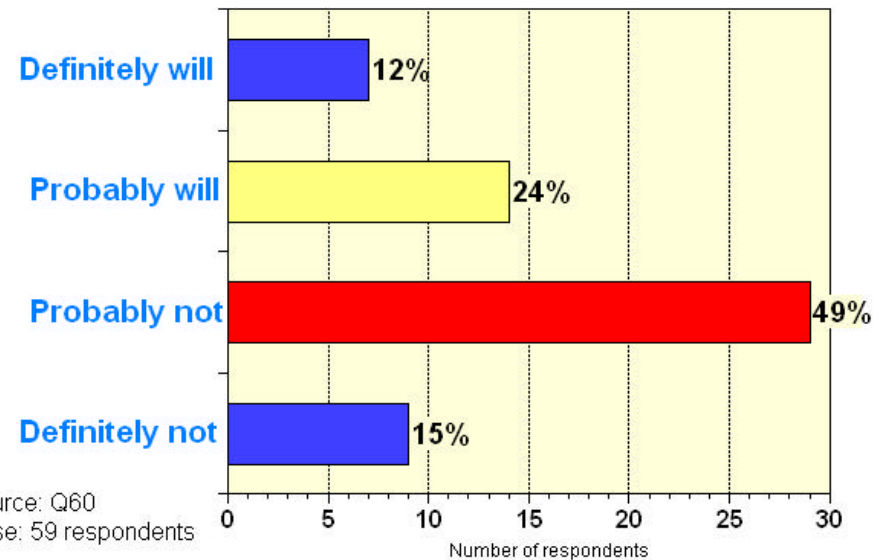
Penalty for Noncompliance Given as a Reason for Not Signing by # mWh Used Last Month



Q58. How likely is it that you would have participated in the Day-Ahead Demand Response Program(DADRP) if the penalty for non-compliance were eliminated?



Intention to Sign Up for 2002 DADRP

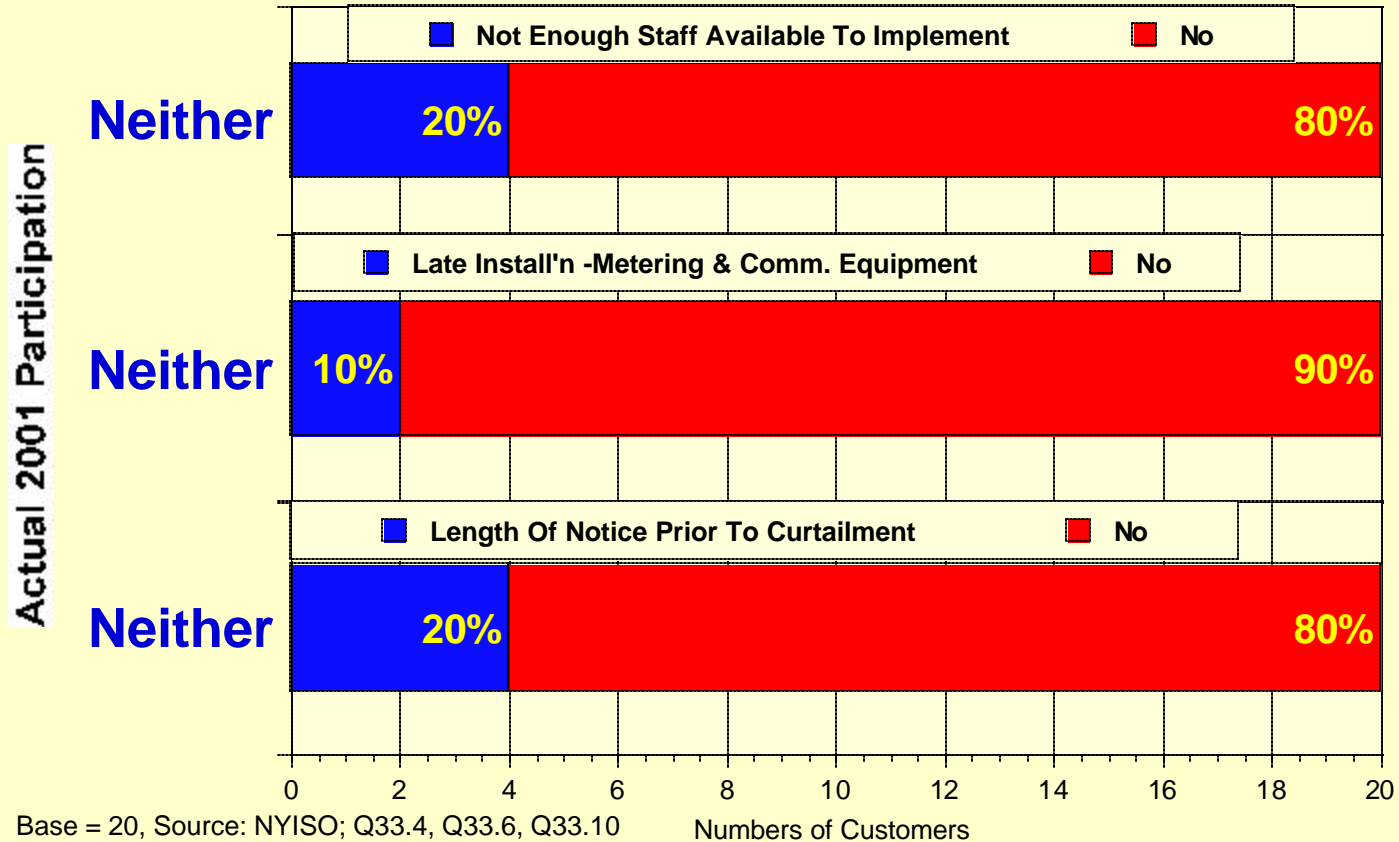




H8: For many customers, the **lack of sufficient time or firm staff/resources served as a deterrent to participation in PRL programs**

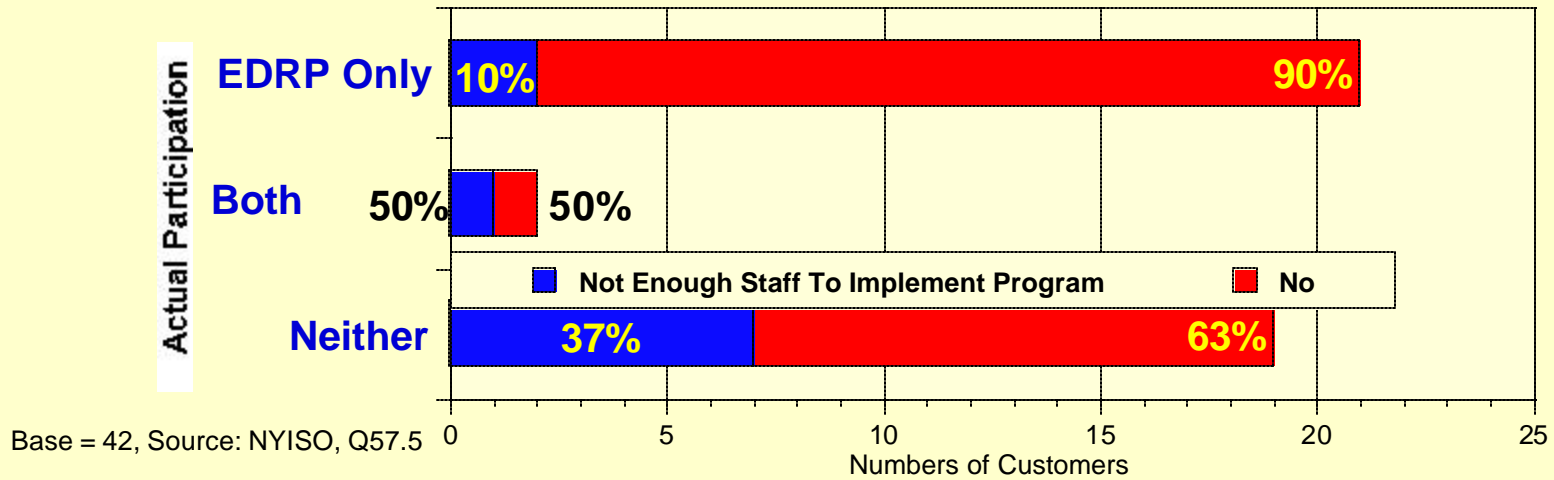
- **Rejected:** At most 20% of those who did not sign up for EDRP indicated that limitations of time and human resources were a reason.

Actual Participation and Staff-related Reasons for Not Signing Up for EDRP

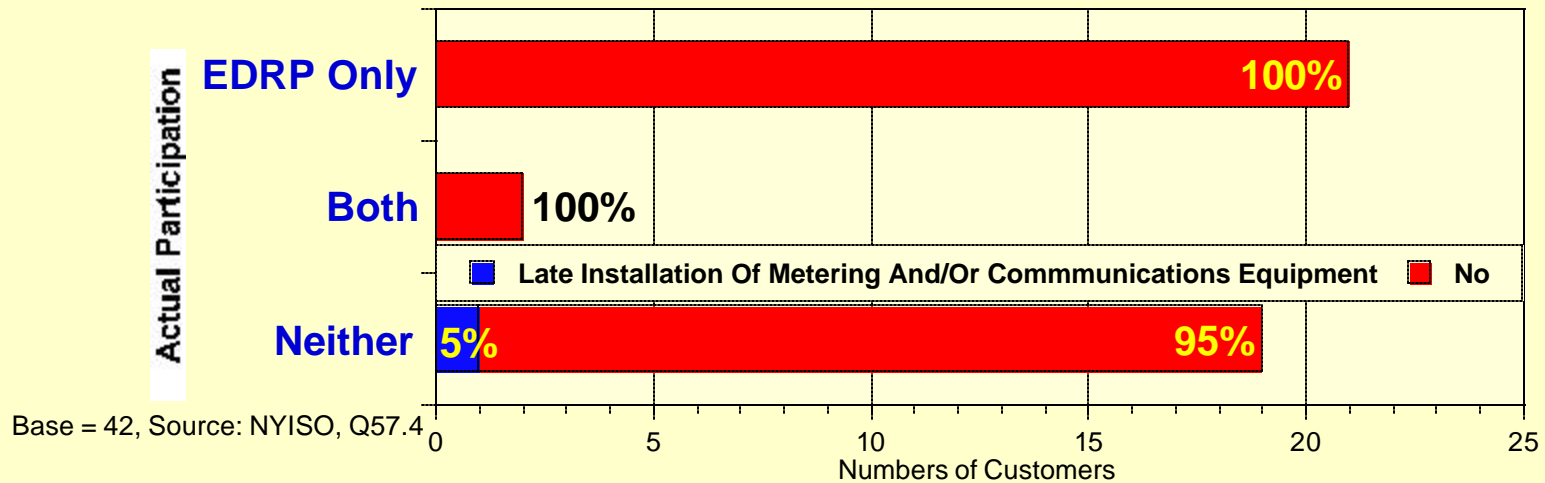


Time/Staff Reasons for Not Signing Up for DADRP

Actual Participation & Lack of Enough Staff



Actual Participation & Late Installation of Metering

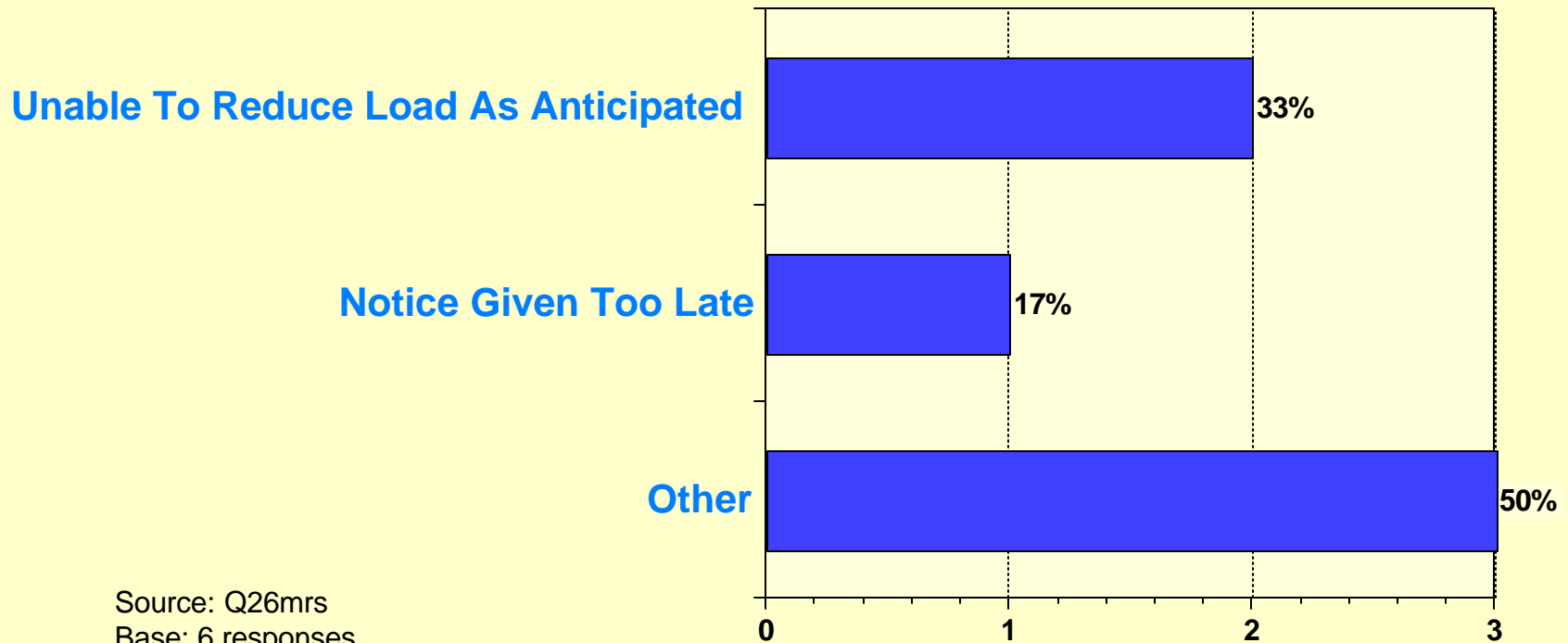




H9: The **lack of information, available in a timely manner, describing the program provision and benefits was a major reason why customers chose not to participate.**

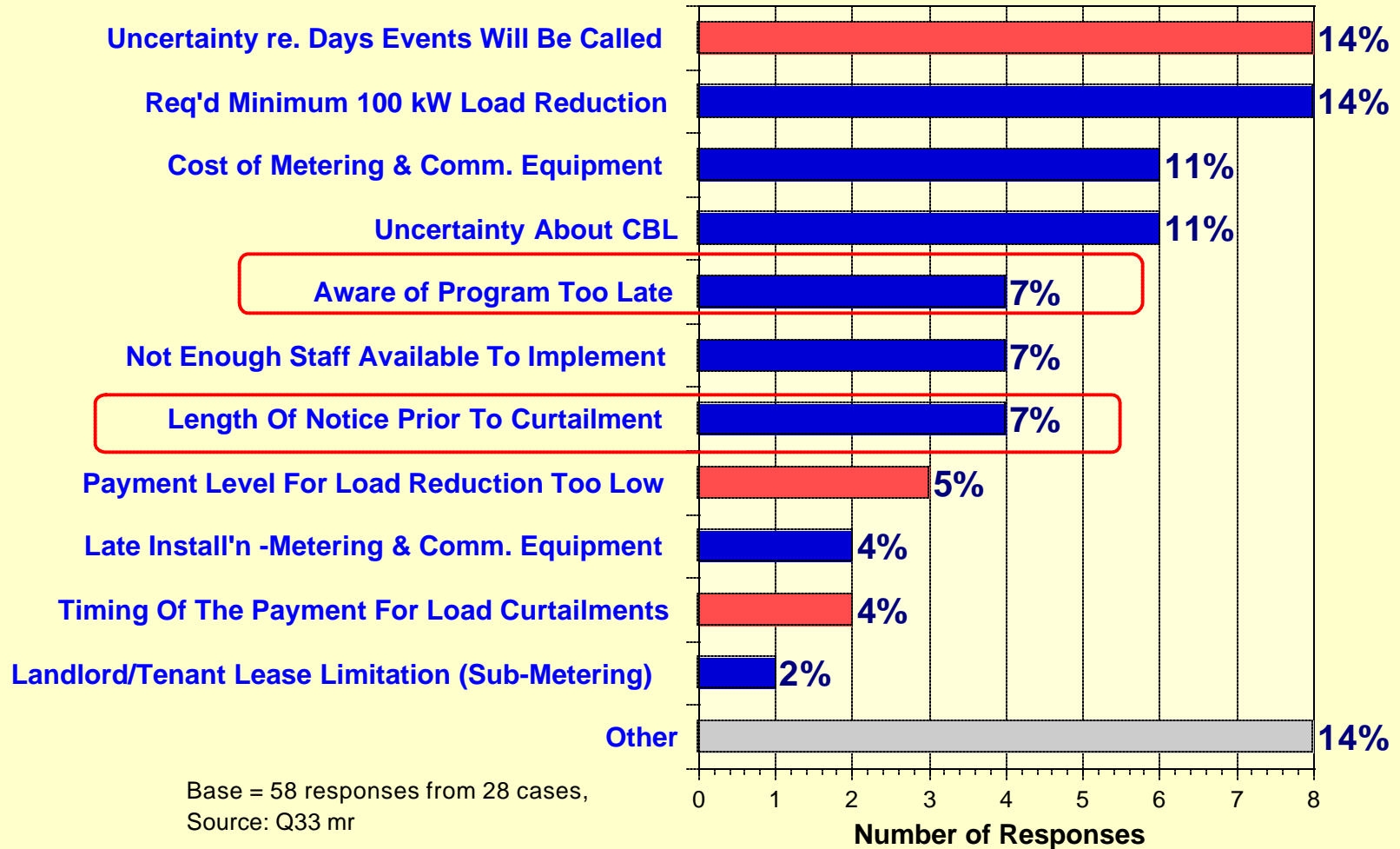
- **While given as reasons for non-participation, these were **not the major reasons.****

Please specify the reasons you did not participate in the EDRP emergency events called on August 7th- 10th, 2001?



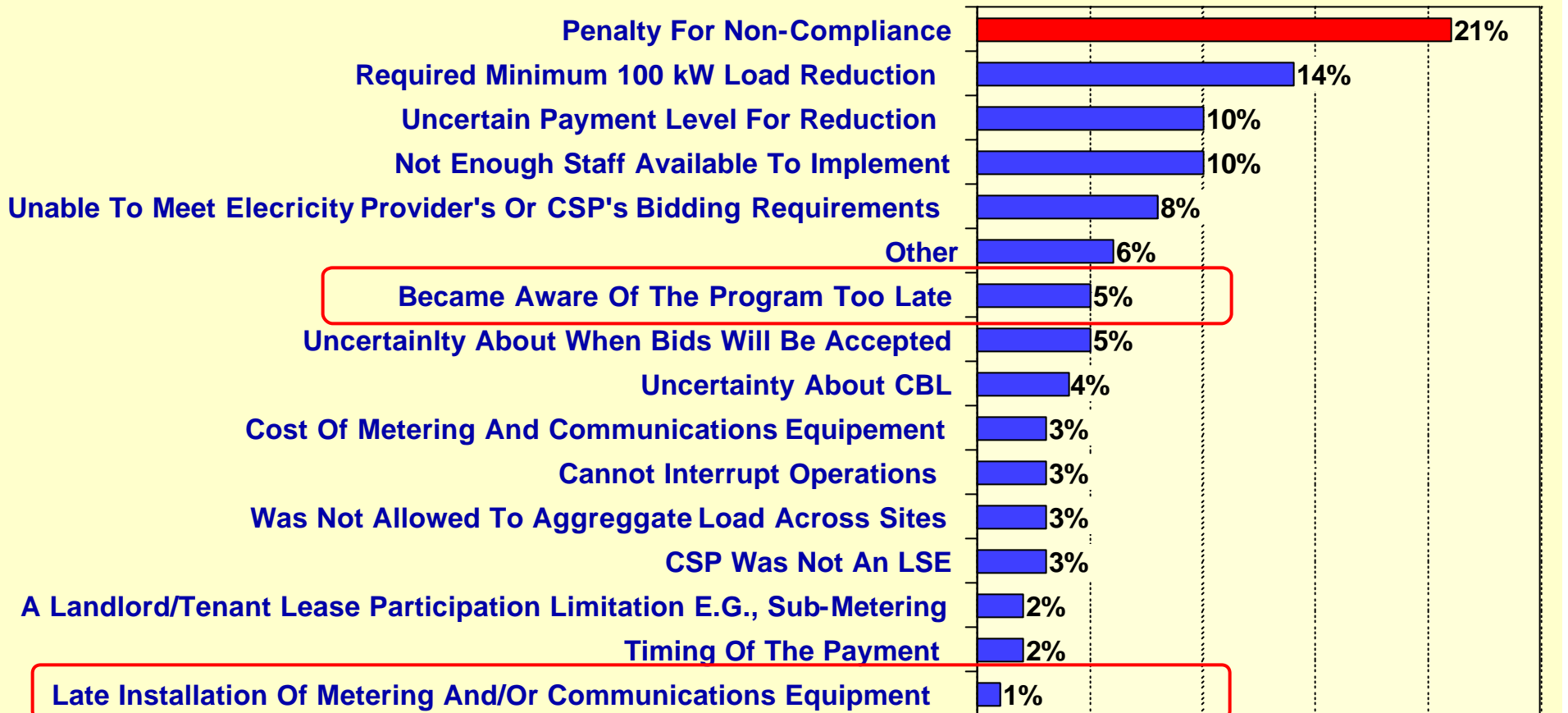
Source: Q26mrs
Base: 6 responses

Reasons for Not Signing Up for EDRP





Factors that contributed directly to decision not to sign up to the DADRP



Source: Q57mrs

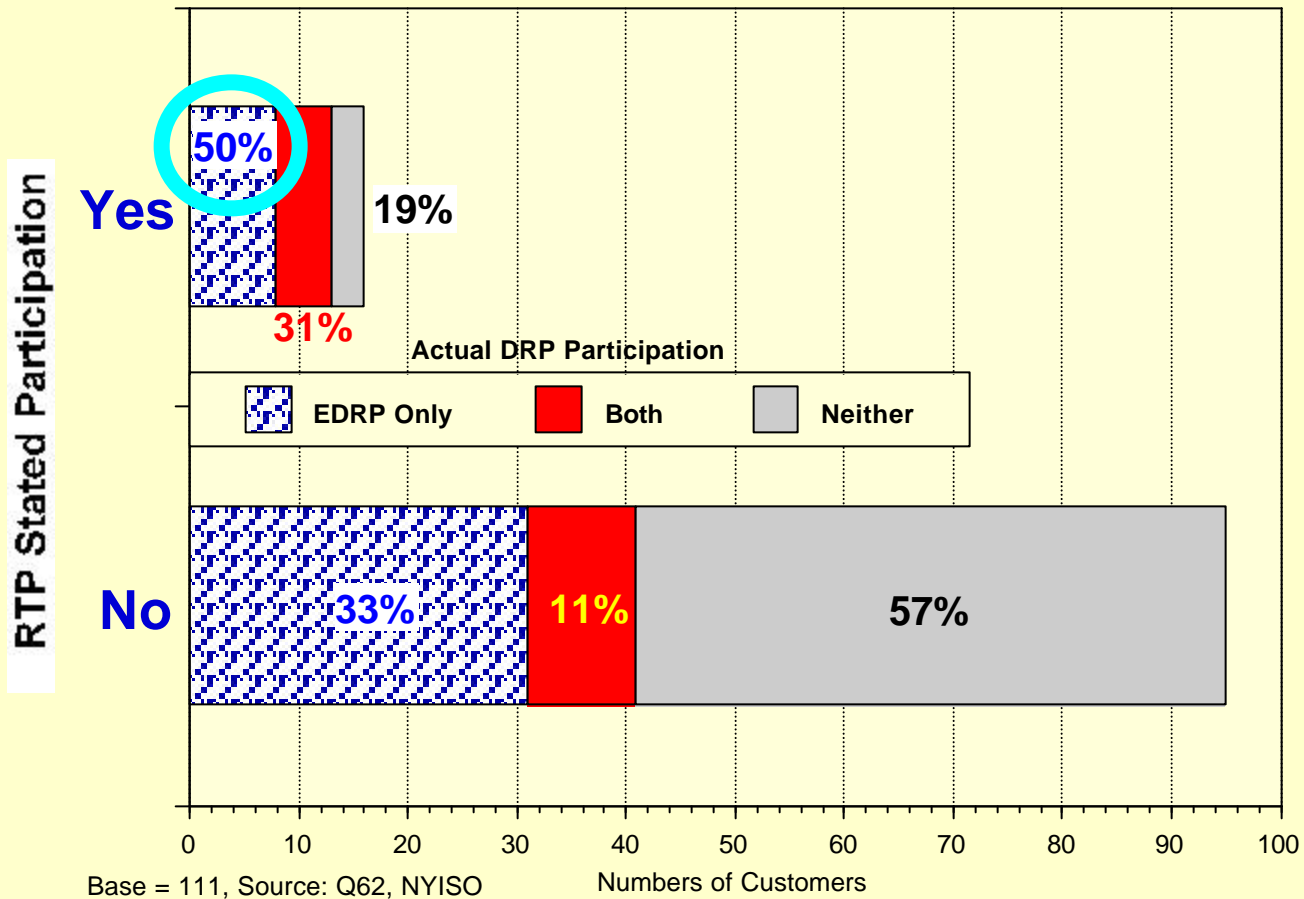
Base: 100 responses



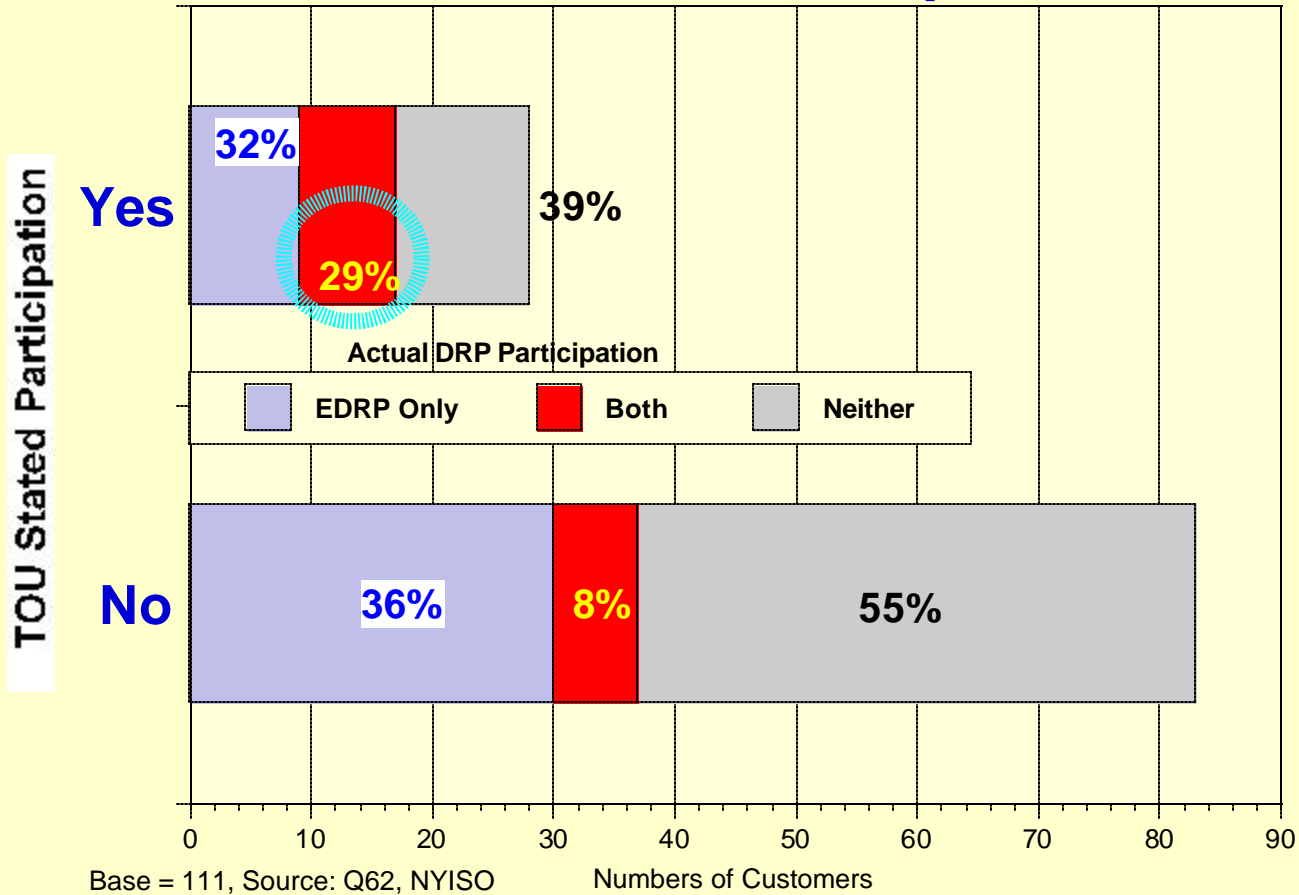
H10: Prior participation in other load management or pricing programs had a strong influence on participation in EDRP/DADRP.

- **A significant relationship tends to exist between prior participation in RTP programs and current 2001 participation in NYISO DRP programs.**
 - While 50% of those who stated having participated in RTP previously participated in EDRP in 2001, 32.6% of those who had not participated in RTP participated in the 2001 EDRP.
 - 31.3% of those who had participated in RTP previously participated in both EDRP & DADRP in 2001, while 10.5% of those who did not have RTP experience participated in both DRP programs in 2001.
- **Past TOU participation and 2001 DRP participation tend to be significantly related.**
 - Significantly higher percentage of those who had participated in TOU programs participated in both NYISO 2001 DRP programs (29%) compared to those with no TOU participation (8%).
- **A significant statistical relationship does not seem to exist between past participation in interruptible/curtailable programs and 2001 DRP participation.**

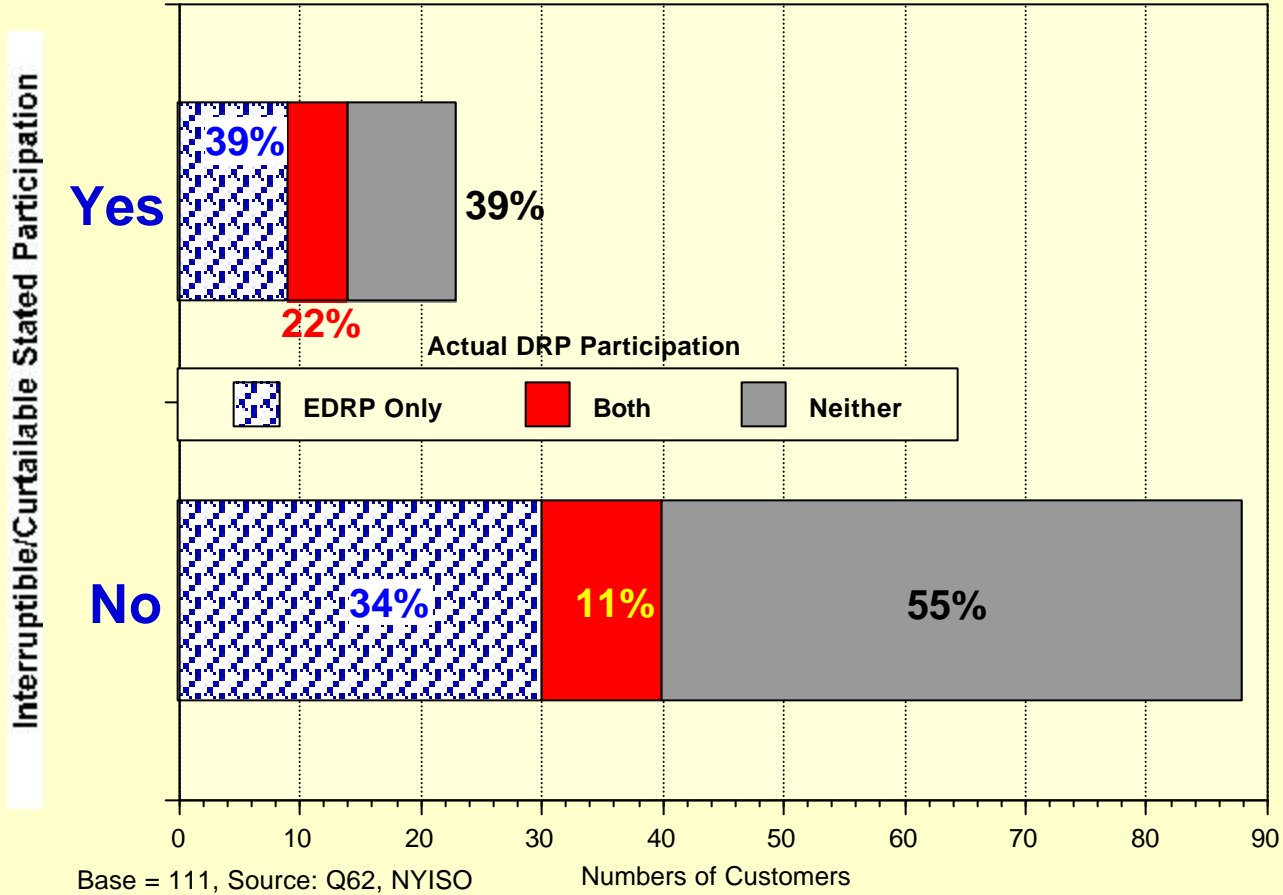
H10: Past RTP Participation and Actual DRP Participation



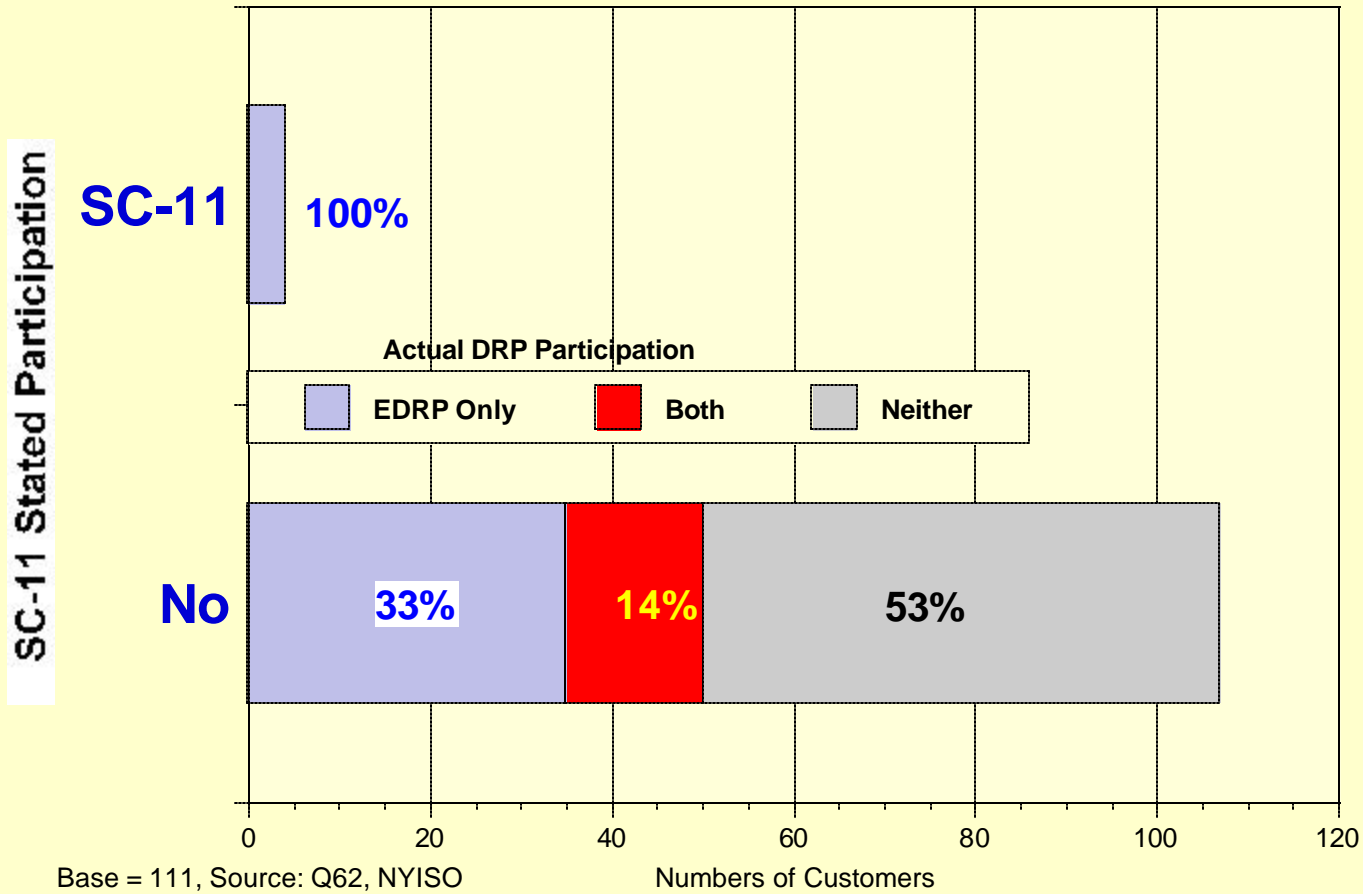
Past TOU Participation and Actual DRP Participation



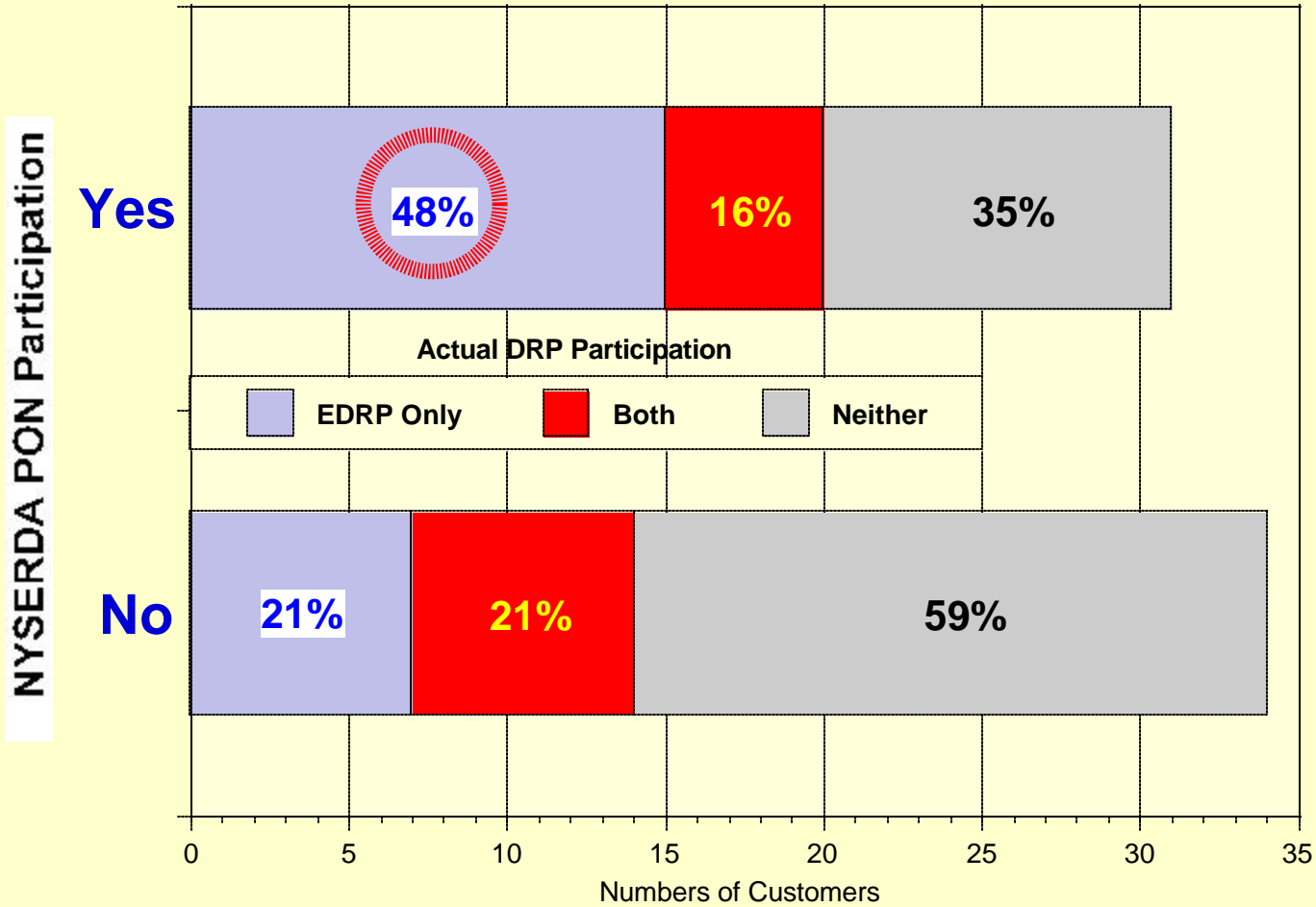
H10: Past Participation in Interruptible/ Curtailable and Actual DRP Participation



H10: Past SC-11 Participation and Actual DRP Participation



NYSERDA PON 585 & 577 Participation and Actual DRP Participation



NYSERDA PONs participants were significantly more likely to have actually participated in the NYISO DRPs.

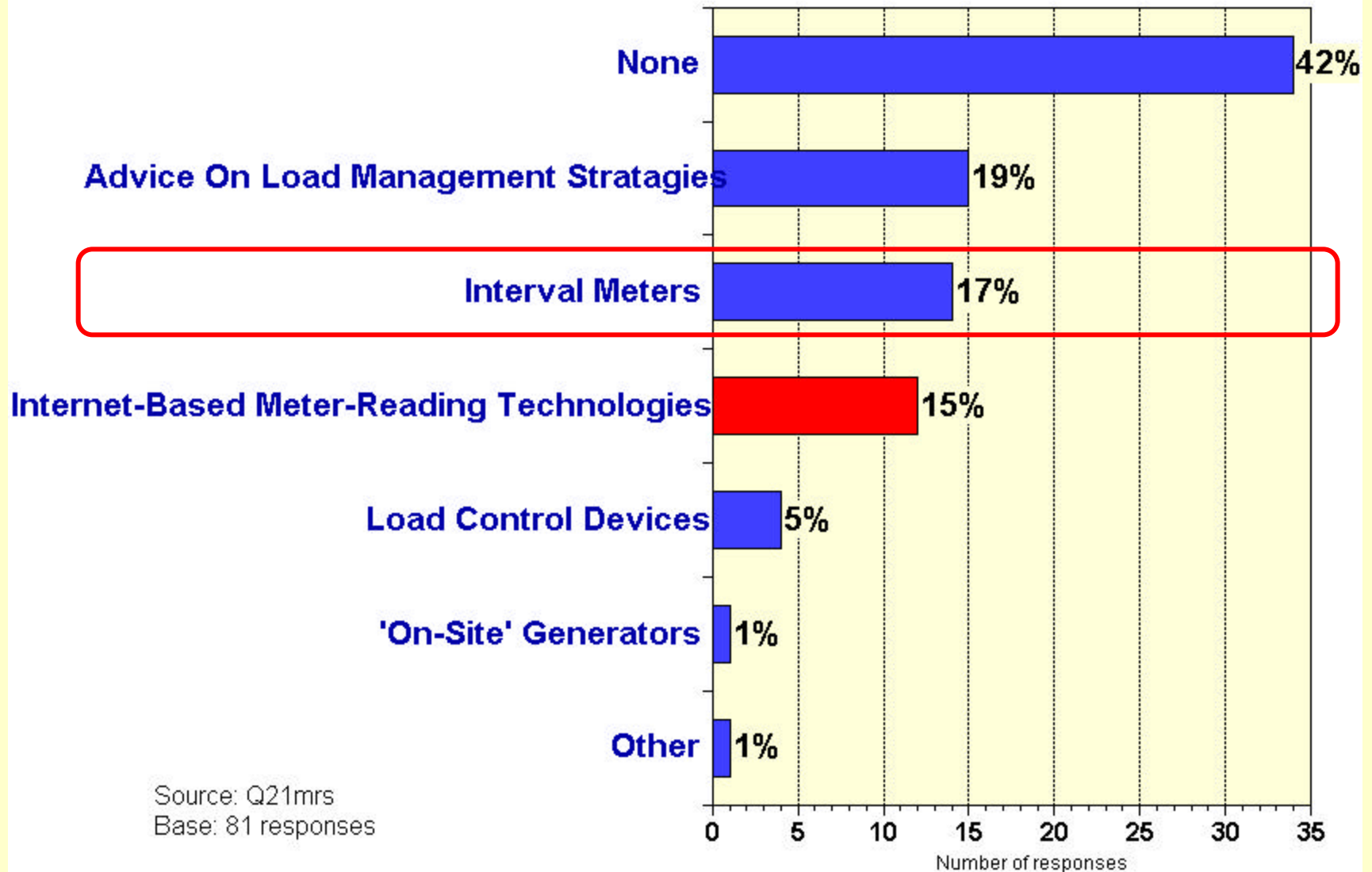
Base = 65, Source: Q7, NYISO Combined participation



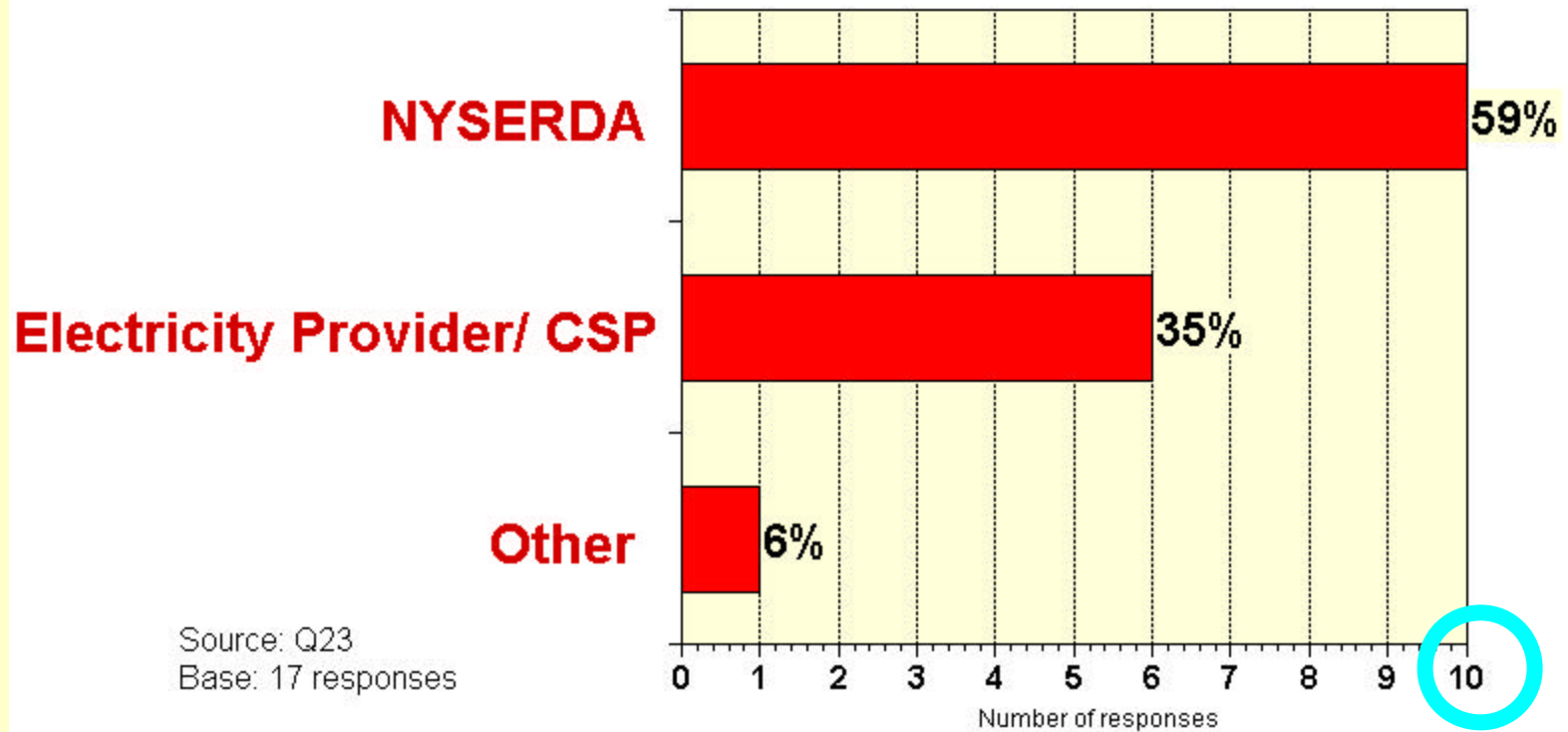
H11: Customers who received an **interval meter incentive from NYSERDA were more likely to participate in a PRL program.**

- While differences in percentages are seen on the next slide, the number of respondents to these questions was very low and limits the projectability of this information.

Equipment installed specifically to participate in EDRP



Financial Assistance Source to Purchase Equipment for EDRP

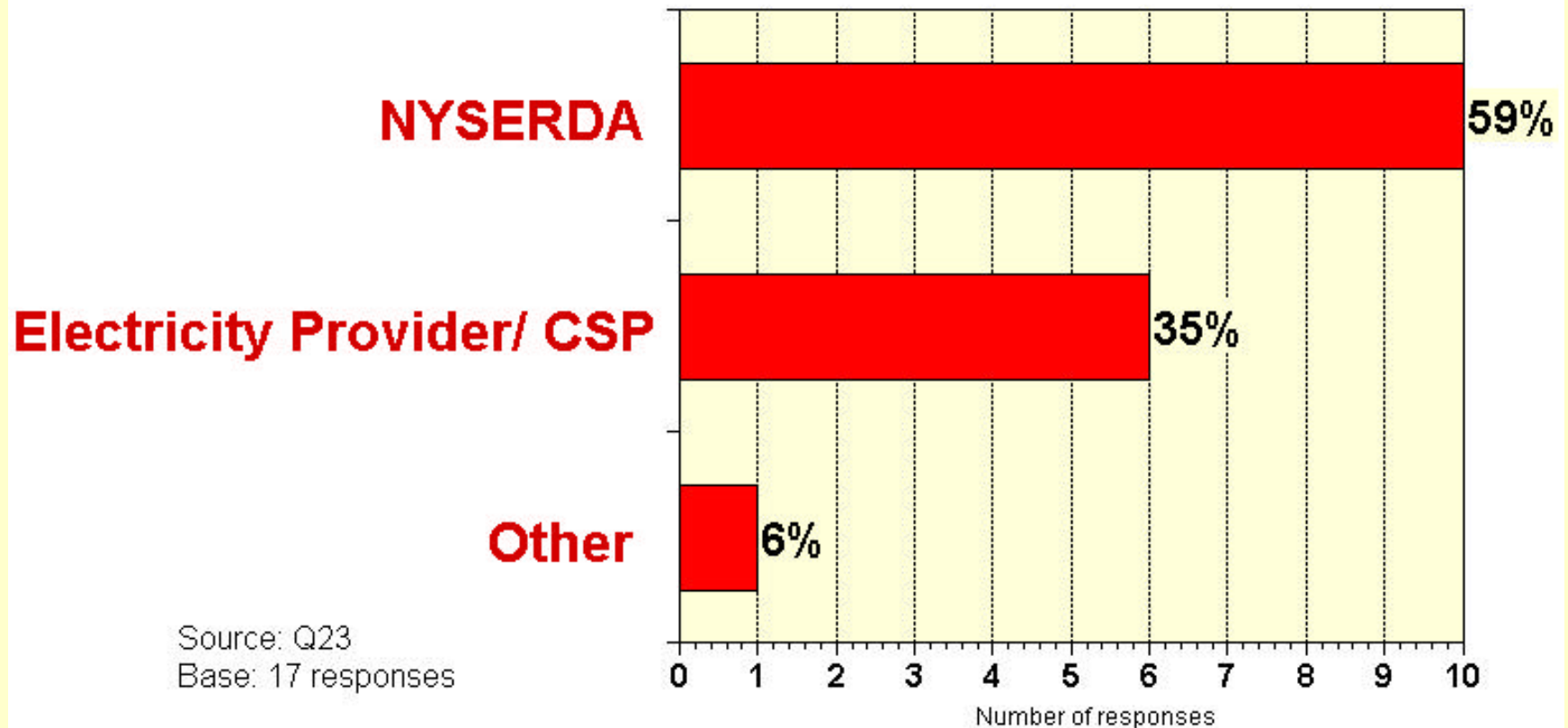




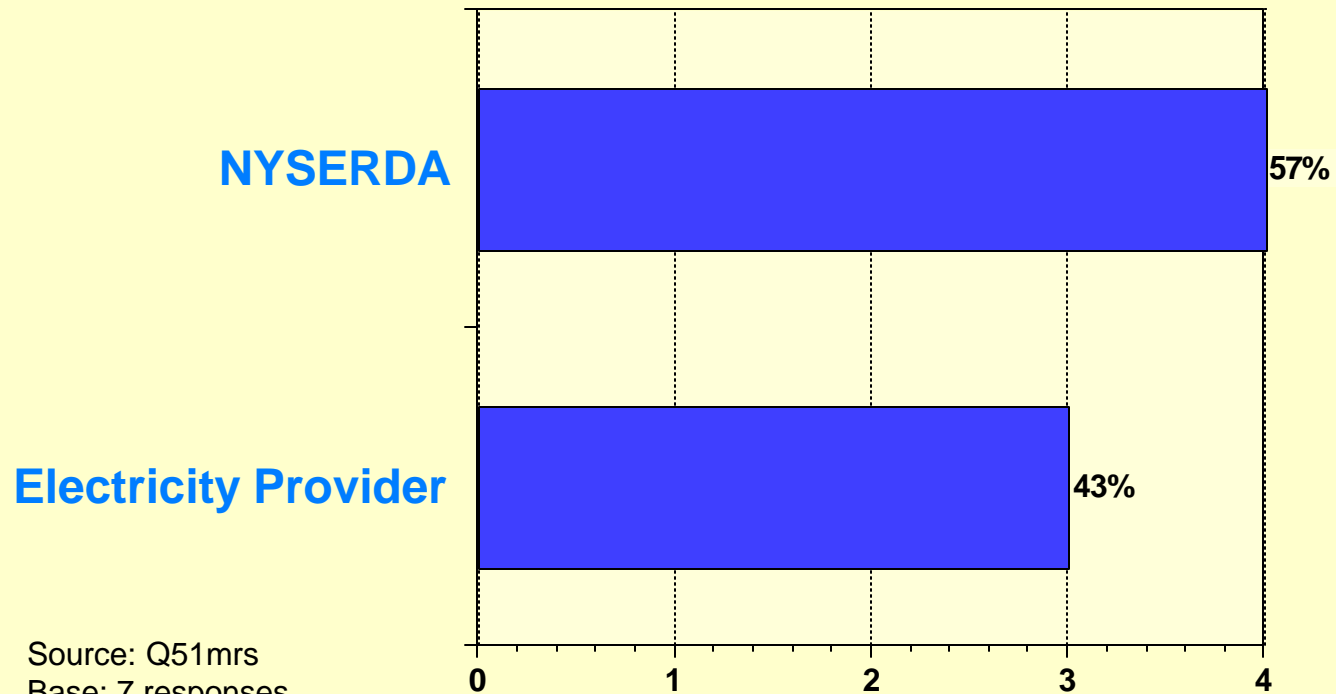
H12: Participants who received **NYSERDA funding for enabling technology achieved a higher level of performance.**

- **1.40 mW** from those who received NYSERDA funding
(average among 8)
- **1.25 mW** from those who did not receive NYSERDA funding
(average among 4)
- **Not enough respondents to analyze for DADRP**

Financial Assistance Source to Purchase Equipment for EDRP



Financial Assistance Source to Purchase Equipment for DADRP

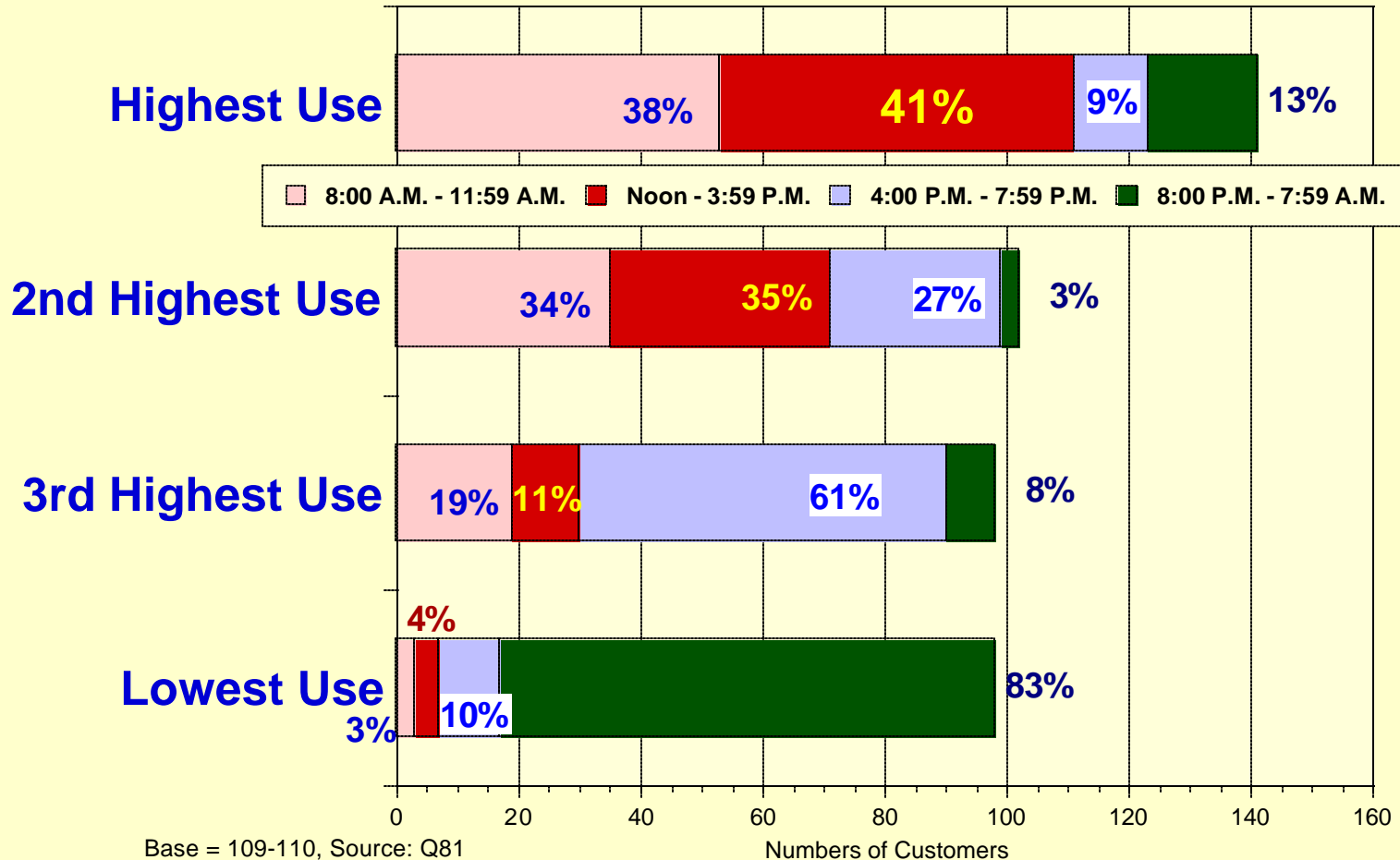


Source: Q51mrs
Base: 7 responses

H16: Lack of knowledge about their load shape is a barrier to participation for many customers.

- Rejected. Customers seemed to have a very good idea of their load shapes.

Peak Daily Usage





H19: Most customers found out about the PRL programs through their local utilities.

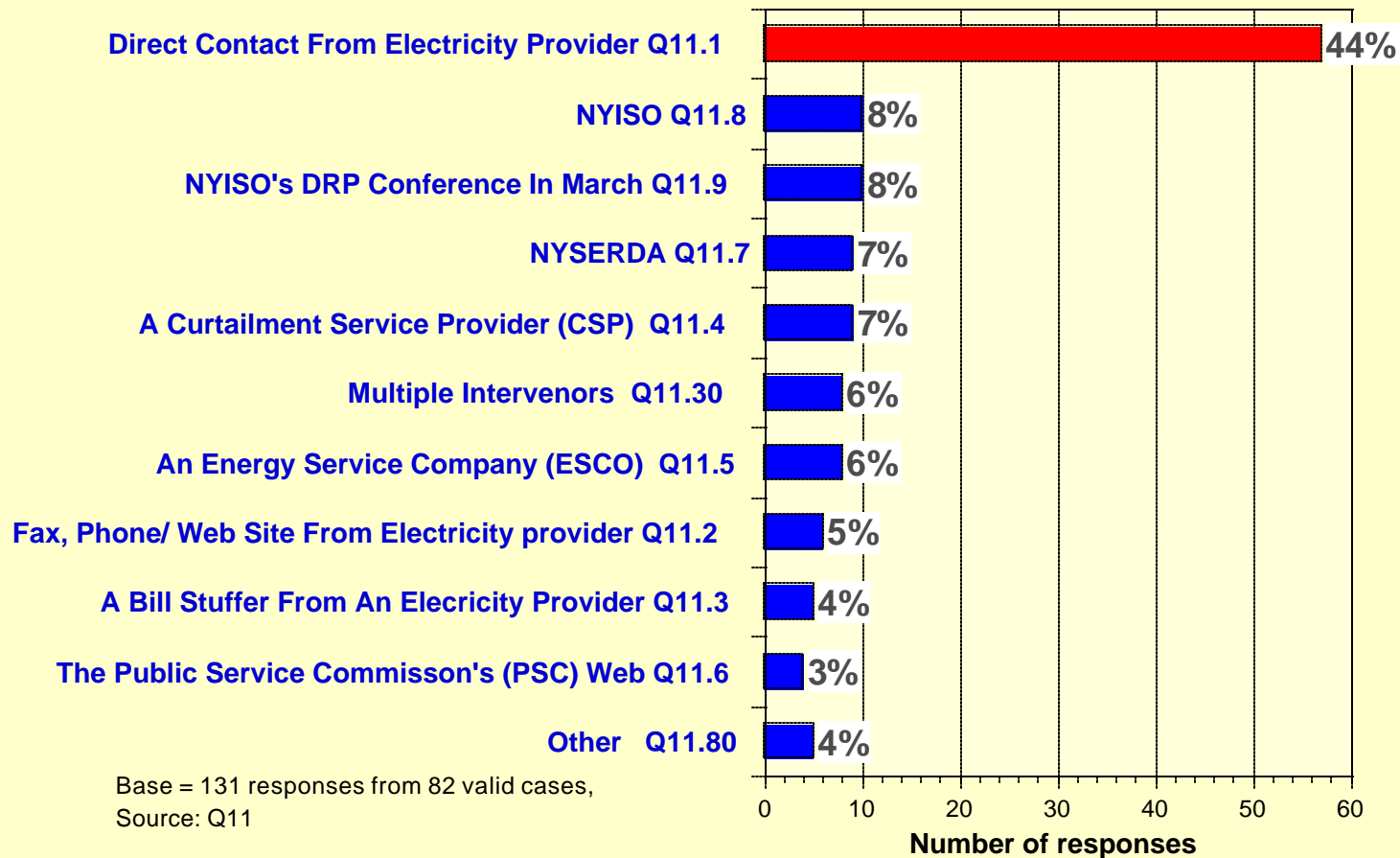
- This tends to be confirmed by the data.



H19: Most customers **found out** about the PRL programs through their **local utilities**.

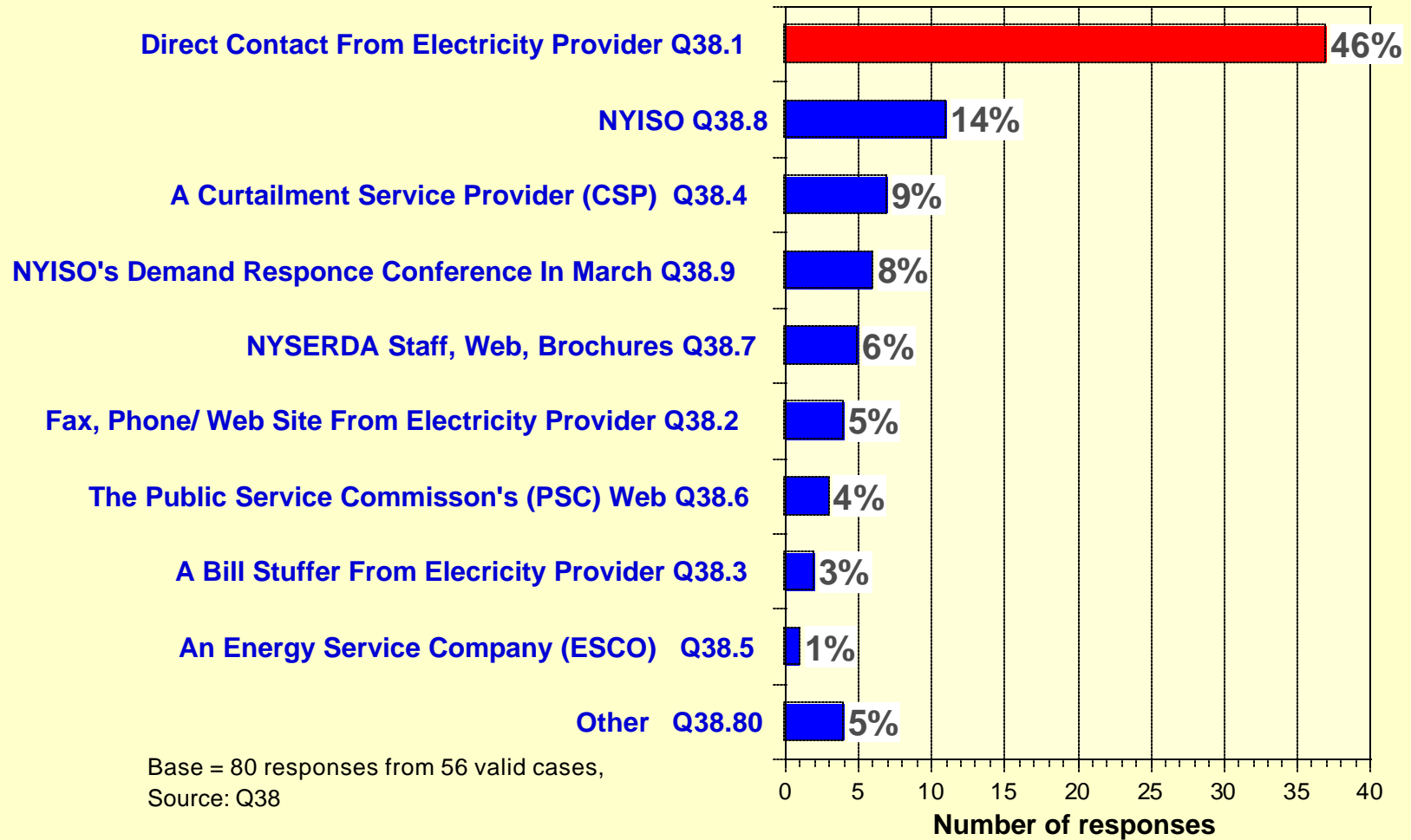
➤ This tends to be confirmed by the data.

Sources of Information About EDRP





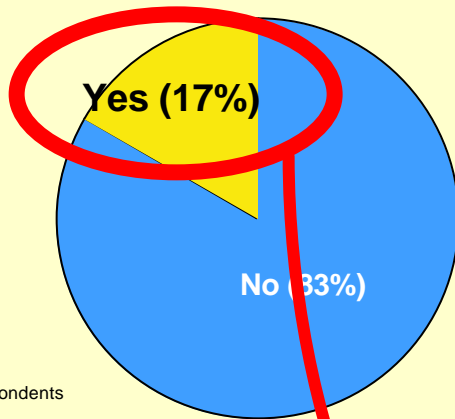
Sources of Information About DADRP



H20: The continued joint participation in ICAP is critical to maintaining customer participation in PRL programs.

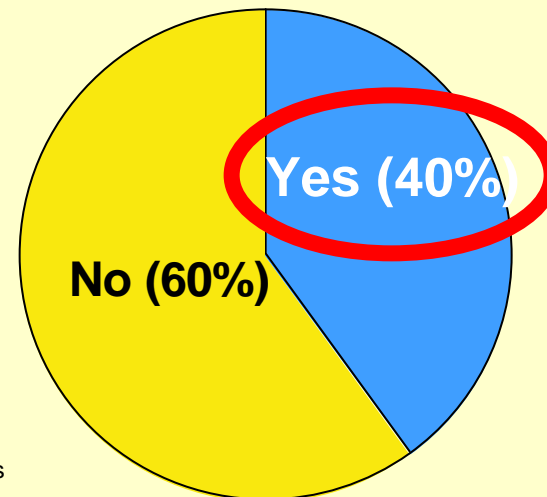
- This tends not to be confirmed by the survey data.

Q27. Do you participate in the NYISO's ICAP Special Case Resource program?



Source: Q27
Base: 60 respondents

Q28. If, in the future, you were not allowed to participate in both NYISO's ICAP Special case Resource program and the Emergency Demand Response Program(EDRP), would you still participate in EDRP?



Source: Q28
Base: 10 respondents

Key Drivers of Likely Participation in 2002 EDRP

- Higher **satisfaction** with the 2001 DRPs tends to drive intention to participate in the 2002 DRPs.

Drivers of 2002 EDRP Sign-Up

Q59. Likelihood will sign up for 2002 EDRP?

Cat.	%	n
Definitely not	3.51	2
Probably not	26.32	15
Probably will	31.58	18
Definitely will	38.60	22
Total	(100.00)	57

Q29A. EDRP Satisfaction Overall

Very dissatisfied;<missing>

Cat.	%	n
Definitely not	9.52	2
Probably not	61.90	13
Probably will	23.81	5
Definitely will	4.76	1
Total	(36.84)	21

Slightly dissatisfied;Slightly satisfied;Somewhat satisfied

Cat.	%	n
Definitely not	0.00	0
Probably not	4.00	1
Probably will	52.00	13
Definitely will	44.00	11
Total	(43.86)	25

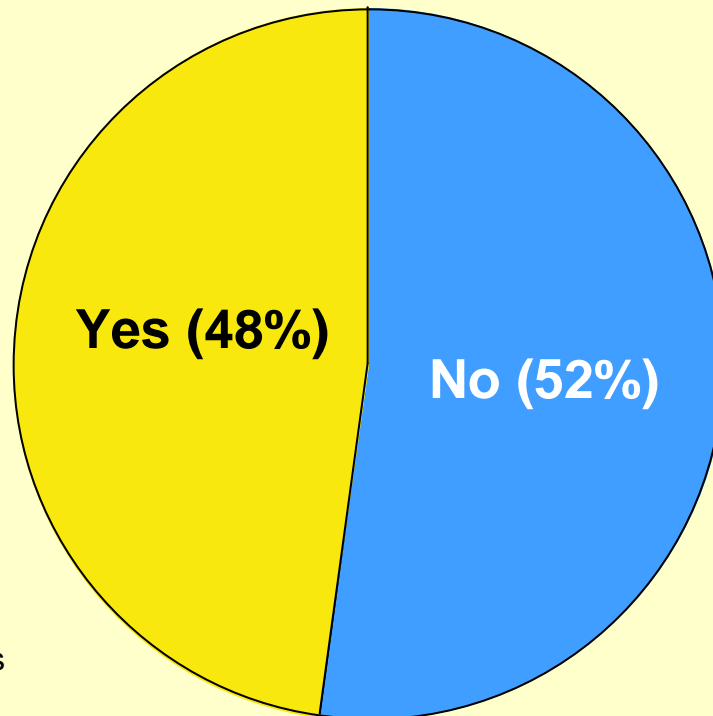
Very satisfied

Cat.	%	n
Definitely not	0.00	0
Probably not	9.09	1
Probably will	0.00	0
Definitely will	90.91	10
Total	(19.30)	11



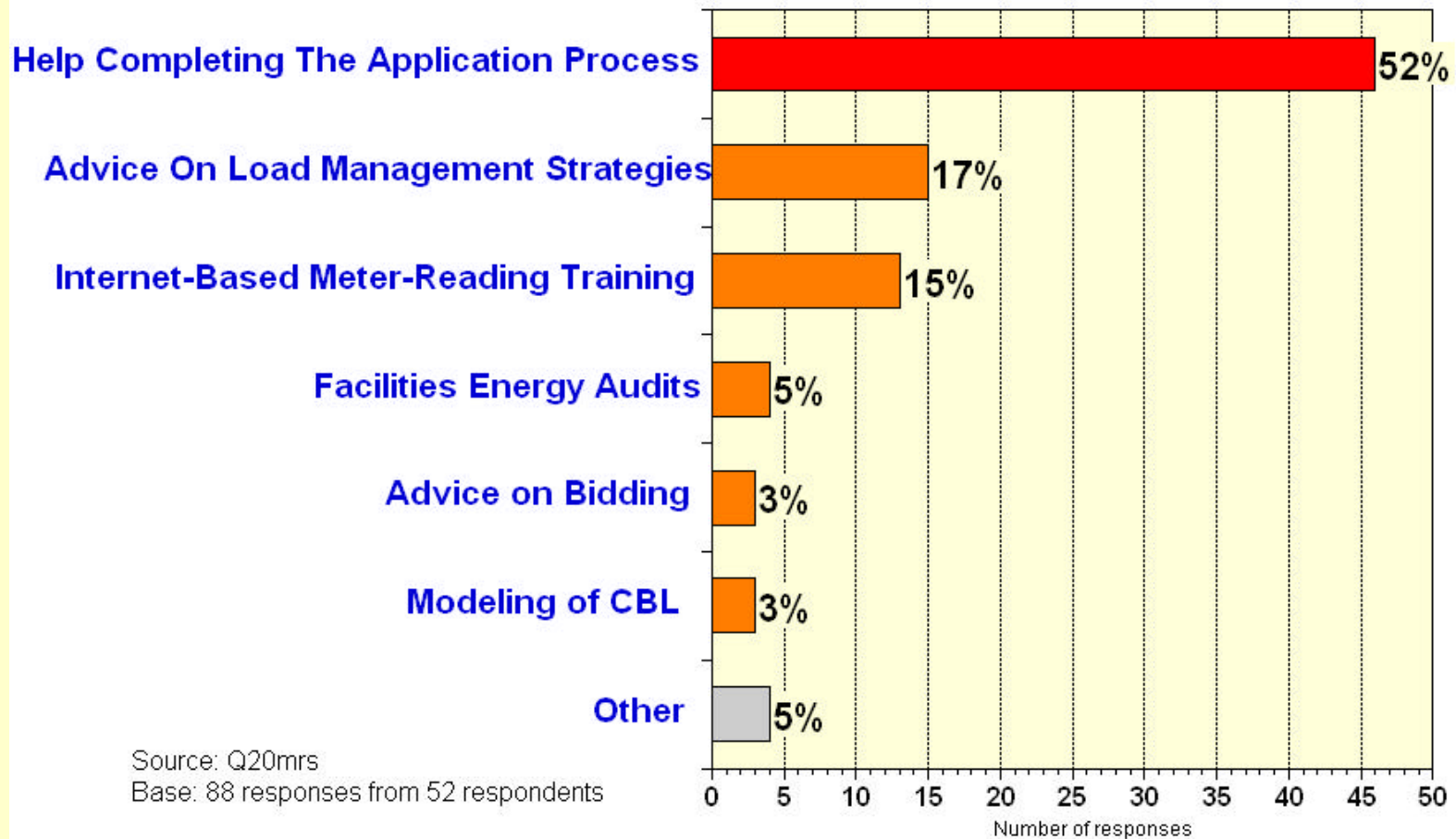
Answers to Selected Survey Questions

Q1. Prior to 2001, did your utility ask your organization to reduce electricity usage voluntarily and without compensation to help cope with an emergency?

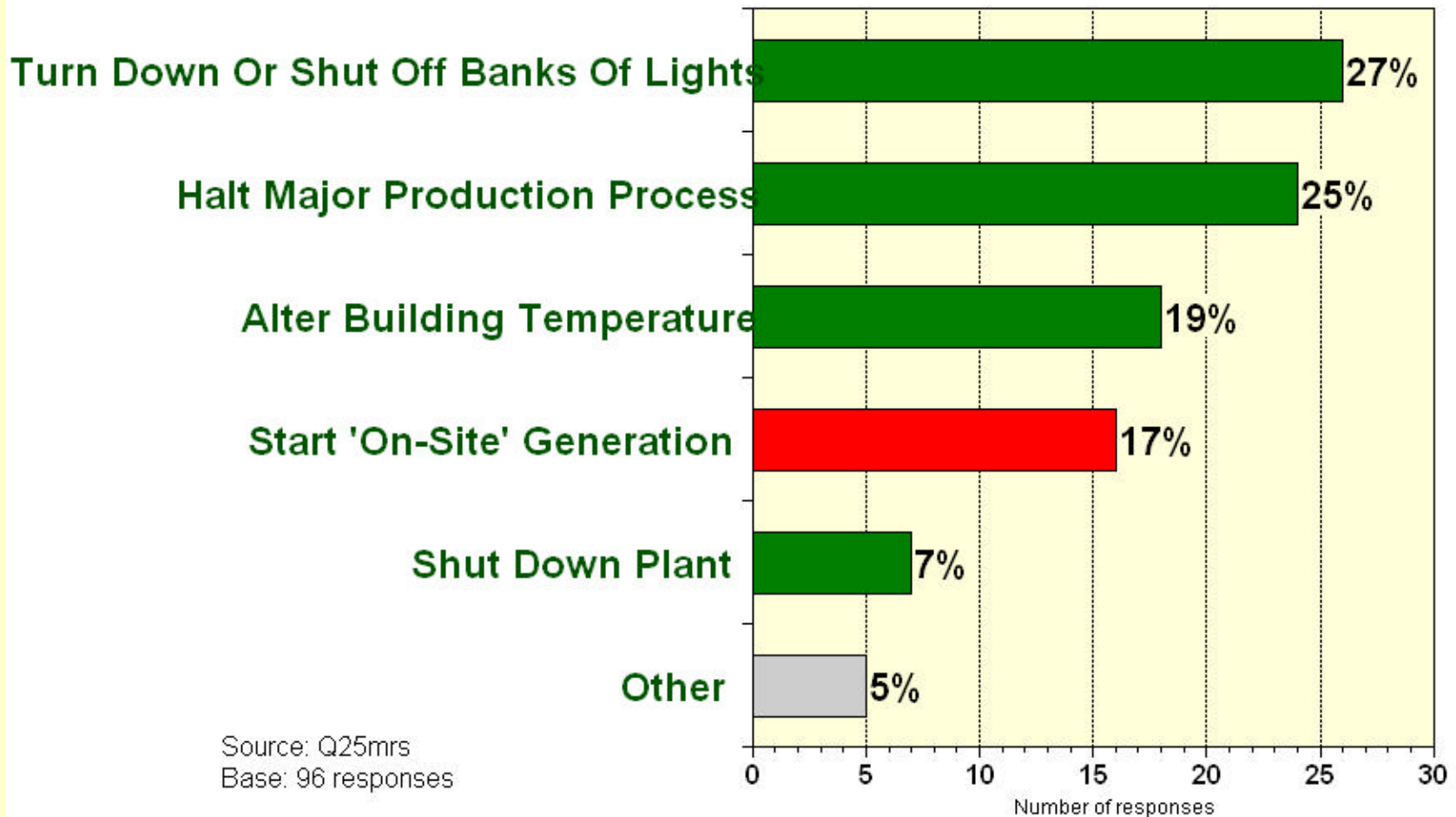


Source: Q1
Base: 109 respondents

Assistance Received in Facilitating Participation in EDRP



Compliance actions undertaken during the EDRP emergency events on August 7th- 10th, 2001?



Assistance received in facilitating participation in the DADRP

Help In Completing The Application Process

38%

Advice On Load Management Strategies

24%

Training On Internet-Based Meter-Reading

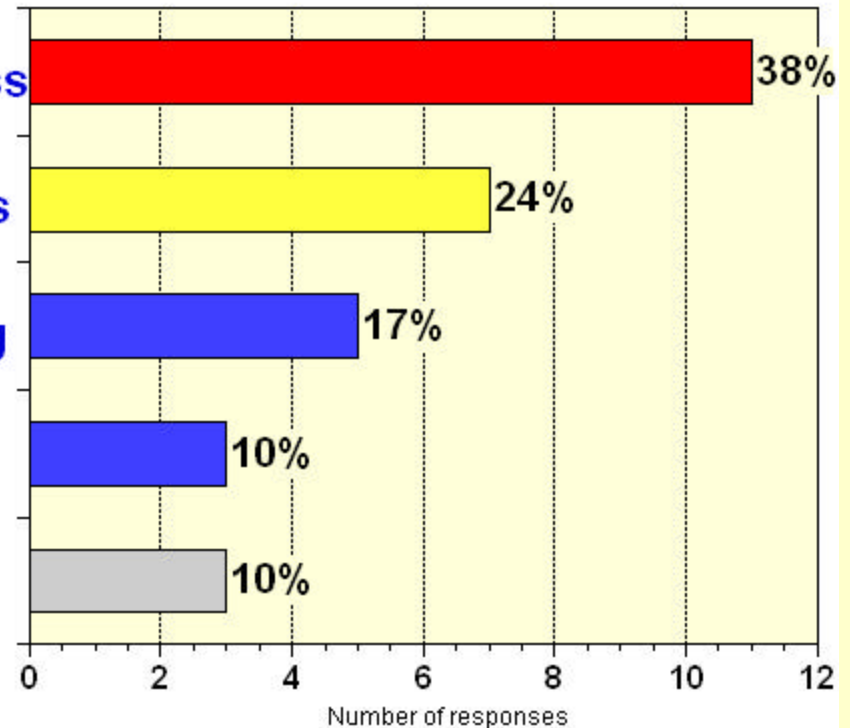
17%

Facilities Energy Audits

10%

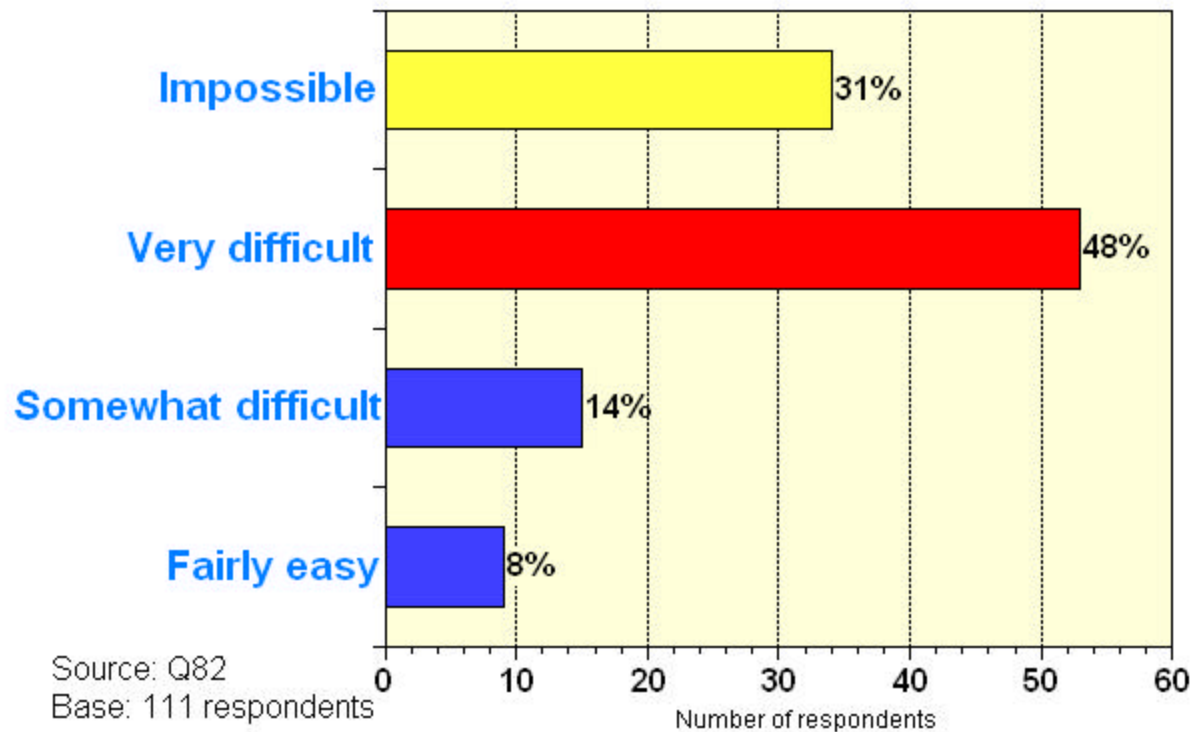
Other

10%



Source: Q48mrs
Base: 29 responses

Q82. How easy would it be to shift part of your electricity usage from the period of highest use indicated in the previous question to a period of lower use?



Key Findings

- Customers were significantly **more satisfied with EDRP than with DADRP**.
 - *Few DADRP participants & none by itself*
- **Satisfaction**: program & financial benefits
- **Dissatisfaction**: not cost effective, slow feedback, slow payment

Key Findings

- Lack of **CBL** reflecting weather sensitivity did not influence participation
- Participants in **2001** DRP are significantly more likely to participate in **2002**.
- **Email**, not bill stuffers, is the most effective way to promote DRPs
 - *Direct contact from providers was responsible for greatest awareness of DRP*

Key Findings: Information

- **EDRP** information more useful than DADRP
- EDRP **event notification timing** & **payment amount** were fairly well understood
- **CBL calculations** were understood less and at about the same level for EDRP & DADRP
- **Payment timing was least understood** for both DRPs
- **Fuller understanding of timing of event notification positively related to judging EDRP information as more useful.**
- Fuller understanding of CBL calculation drove perceived usefulness of DADRP information.

Key Findings: Participation on other DRPs

- Prior **RTP & TOU** participants were significantly more prone to participate in NYISO 2001 DRPs
- Participants seemed to understand their load shapes.

NYSERDA Influences

- **NYSERDA PONs participants were significantly more likely to participate in the NYISO's 2001 DRPs**

Main Recommendations

- **Clearly communicate** difficult attributes of the DRPs to all customers.
 - *This information should be sent by the **LSEs** and **NYISO** by email or by personal contact. **NYSERDA** could also be an effective communicator.*
- Strongly attempt to **get customers in any program**. Participation in one program significantly increases their likelihood of participating in others.



**Thanks,
folks.**