

# **Environmental System Products**

## **CLEANSCREEN EVALUATION**

### **FINAL REPORT**

**January 2012  
Sibley Associates, Inc.**

## **BACKGROUND**

ESP has been a provider of inspection station emissions testing equipment and programs for many years.

The company is pursuing remote sensing technology that uses roadside based spectroscopy to evaluate emissions of individual passing vehicles. The technology is capable of issuing inspection waivers to individual vehicle owners.

ESP is currently conducting a pilot test of the CleanScreen program in Williamson County, Tennessee. ESP would like to use this experience to profile how motorists' attitudes and behaviors surrounding emissions testing and how their reactions to OBD/MIL indicators are affected by the CleanScreen experience.

## **OBJECTIVES**

To provide a quantified profile of motorists' attitudes and behaviors that result from the CleanScreen program. To provide decision support information to regulatory agencies that will be evaluating the merits of the program.

## **SPECIFICS**

1. Reactions to the CleanScreen experience
  - Participation
2. Affects on attitudes and likely behaviors surrounding an OBD/MIL experience.
  - Meaning of a "Check Engine" light
  - Does the CleanScreen notice improve the CE/SES understanding?
  - Likely reactions to a "Check Engine" light
3. Overall reactions to the CleanScreen program.
  - Contribution to environmental protection
  - Efficiency, time savings
  - Overall rating of the CleanScreen concept
  - Benefits the CleanScreen program provides to motorists. Saves time, saves money, general convenience.
  - Should the program be continued?

## **METHODOLOGY**

- A total of n=386 self-administered interviews were completed and tabulated for this report.
  - o The self-administered paper questionnaires were mailed to all CleanScreen program recipients along with their CleanScreen registration notice.
  - o Respondents were offered a \$10 cash incentive for survey completion.
- The survey was a two-sided 8 ½ x 11 sheet consisting primarily of ☒ style questions and timed to be about a 5 minute task. A pre-paid response envelope was provided. The survey consisted of nine pre-listed [some multi-part] questions and three open-ended questions.
- A total of 340 paper questionnaires and 46 Internet questionnaires were completed.

Analysis note: These results apply to a sampling of motorists who received CleanScreen notices as a result of having passed the program's roadside emissions testing. Therefore, these respondents do not necessarily reflect the attitudes or behaviors of the entire vehicle owner population.

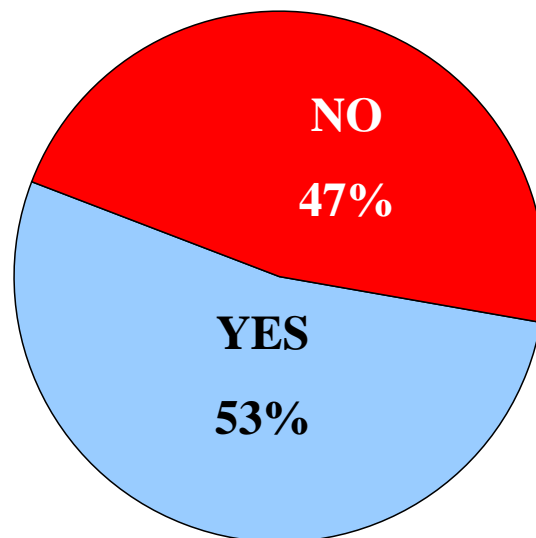
**CONCLUSIONS**

- The CleanScreen program was exceptionally well received and enjoys a high level of appeal among motorists. All liked the program and were enthusiastic about it. All would like it to continue and rate it positively on all dimensions.
- The CleanScreen program generally improved motorists' understanding of and likely reactions to a Check Engine / Service Engine Soon indicator light. Motorists' understanding of what the CE/SES indicator means were weak prior to their receiving the CleanScreen notice.
- There is clearly no indication that the CleanScreen program desensitizes motorists to their CE/SES indicator light. Study results indicate quite the contrary and show a pattern of more positive / more appropriate responses.

About half of CleanScreen respondents had, at some point, experienced a “Check Engine” light episode recently, half have not. [Chart 101] Understanding of the “Check Engine” regamine and reactions to the CleanScreen program differ somewhat between those with and without CE/SES experience.

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**Have Any Of the Vehicles You Have Owned, Or Currently Own, Shown An Illuminated “Check Engine” Or “Service Engine Soon” Indicator Light Within The Past Few Years?**  
(n=386)



## **The Meaning Of A CE/SES Light**

Note: This issue was addressed first with an open response question where respondents used their own words, without any prompting, to provide a top-of-mind response. This was followed by a prompted question where respondents could select one or more responses from a list of suggestions.

On an open-ended basis, only 25% of respondents indicated an emissions-related problem as the meaning of a CE/SES light [Chart 102]. This was substantially overshadowed by the 66% who mentioned some other non-emissions related maintenance issue. These were mostly other “Professional Service Required” or some “Unspecified Engine Problem.”

On the pre-listed version of this question [Chart 103], the largest response was *Poor Engine Performance* at 69%. This was followed by a majority that selected *Emissions Control Sensor Problem* at 59% and *Exhaust Emissions Problem* at 53%. In total [NET], 81% selected one or more of these emissions-related responses. Respondents who had not experienced a CE/SES light were less likely to mention emissions issues.

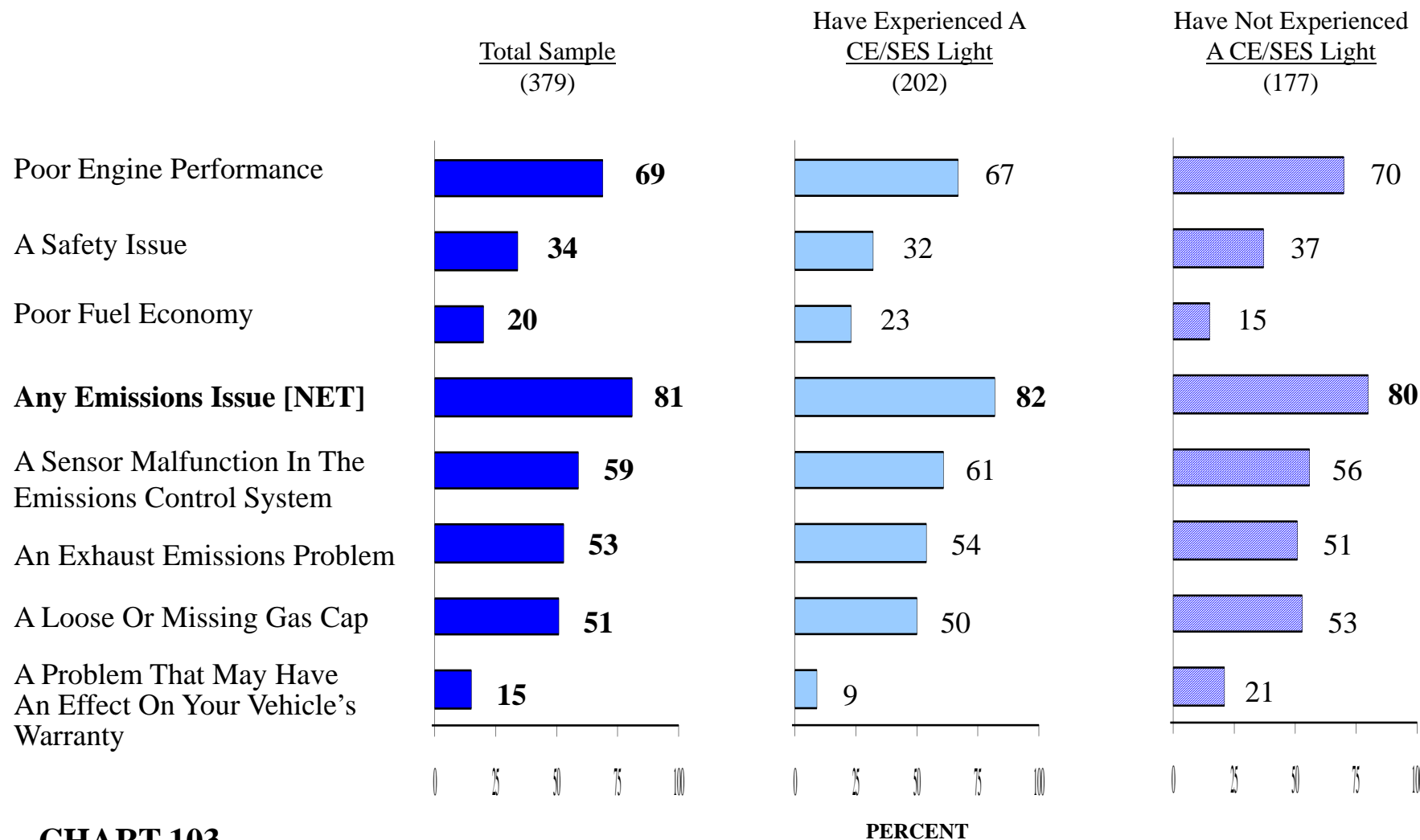
Direct, clear knowledge that a CE/SES light indicates some type of emissions issue is far from complete.

**Prior To Having Received Your CleanScreen Notice, What Had You Thought It Meant  
If the “Check Engine” Or “Service Engine Soon”Indicator Light Stayed Illuminated  
After Your Vehicle’s Initial Start Up Period?**

	<u>Total Sample</u> (386) %	<u>Have Experienced A CE/SES Light</u> (205) %	<u>Have Not Experienced A CE/SES Light</u> (181) %
<b>[NET]: EMISSIONS PROBLEM</b>	<b>25</b>	<b>30</b>	<b>19</b>
- Gas Cap Problem	12	17	6
- Unspecified Emissions Problem	10	14	6
- Sensor Problem	6	6	6
- Catalytic Converter Problem	1	2	1
<b>[NET]: OTHER MAINTENANCE PROBLEM</b>	<b>66</b>	<b>63</b>	<b>69</b>
- Professional Service Required	26	23	29
- Unspecified Engine Problem	22	22	23
- Needs Immediate Attention	13	11	15
- Time To Change Oil	5	8	3
- Routine Maintenance Alert	4	5	3
Unspecified Problem	15	16	13
Don't Know	2	1	3



**Prior To Receiving Your CleanScreen Notice, Which Of The Following Did You Think A “Check Engine” Or “Service Engine Soon” Light Might Have Indicated About Your Vehicle?**



**CHART 103**

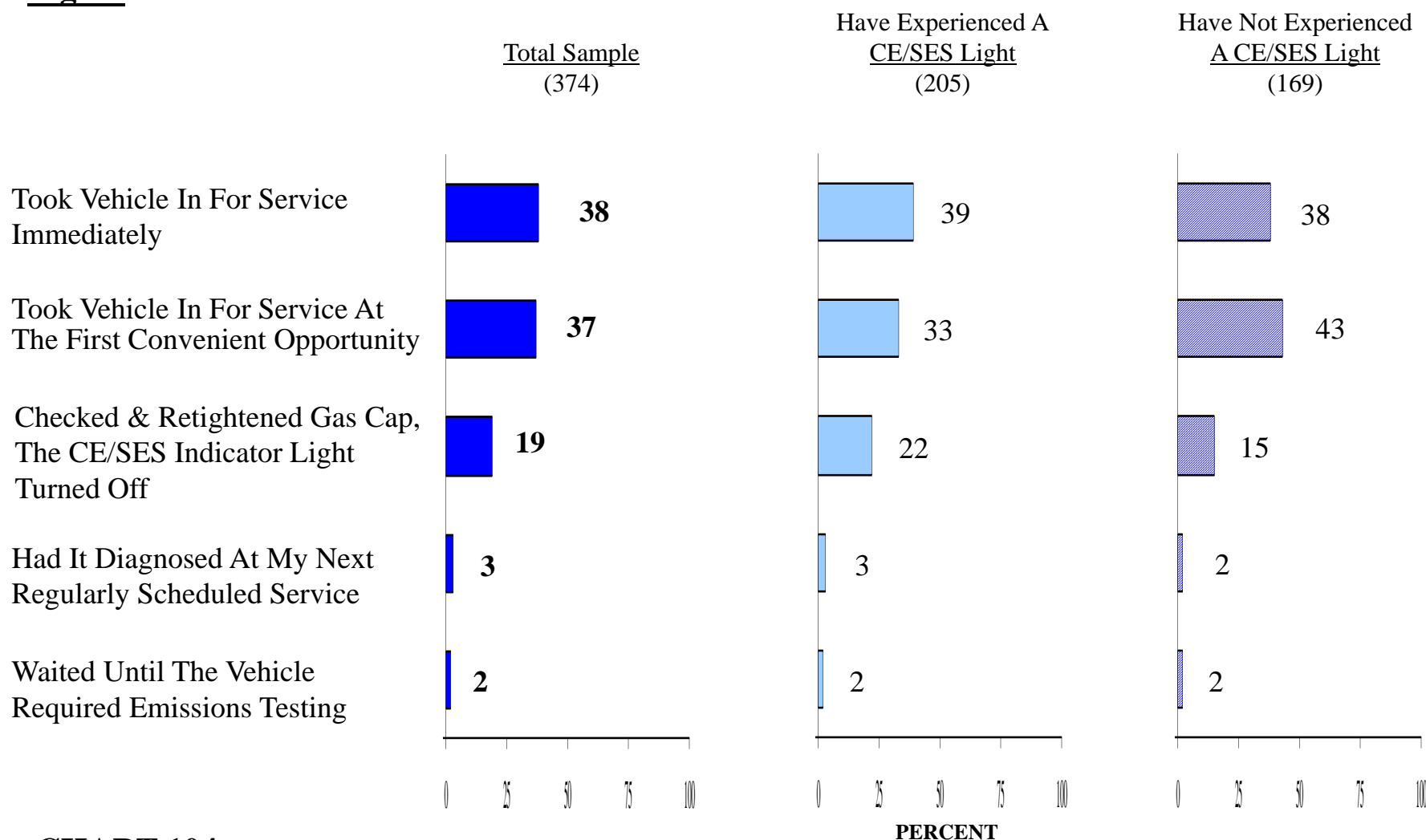
## **Reactions To A CE/SES Indicator Light**

Note: Respondents were asked to select one response from a list of responses reflecting actual or expected reactions upon experiencing a CE/SES indicator light.

About three quarters indicated *Take the Vehicle For Immediate Service* or *Take It At the First Convenient Opportunity* as the likely response [Chart 104]. Less than a quarter of the sample selected *Check Gas Cap*. Those with a CE/SES experience were somewhat more likely to *Check Gas Cap* while those without the experience were more willing to wait for a convenient opportunity. Only a few respondents indicated *Waiting for Regular Service* or *Waiting Until Emissions Testing was Required*.

Most motorists do not intentionally ignore the CE/SES indicator; on the contrary, most take some remedial action quickly.

## What Did You Do (Would You Have Been Most Likely To Do) In The Event You Experienced An Illuminated “Check Engine” Or “Service Engine Soon” Indicator Light?



**CHART 104**

**Effects Of the CleanScreen Program / Mailing On CE/SES Reactions**

As a result of CleanScreen Program information, respondents indicated dramatic changes in their likelihood of taking specific steps as a result of a CE/SES experience [Chart 105].

The three more appropriate outcomes showed greater likelihood:

<i>Check Gas Cap</i>	+75%
<i>Service Immediately</i>	+52%
<i>Service At First Convenient Opportunity</i>	+41%

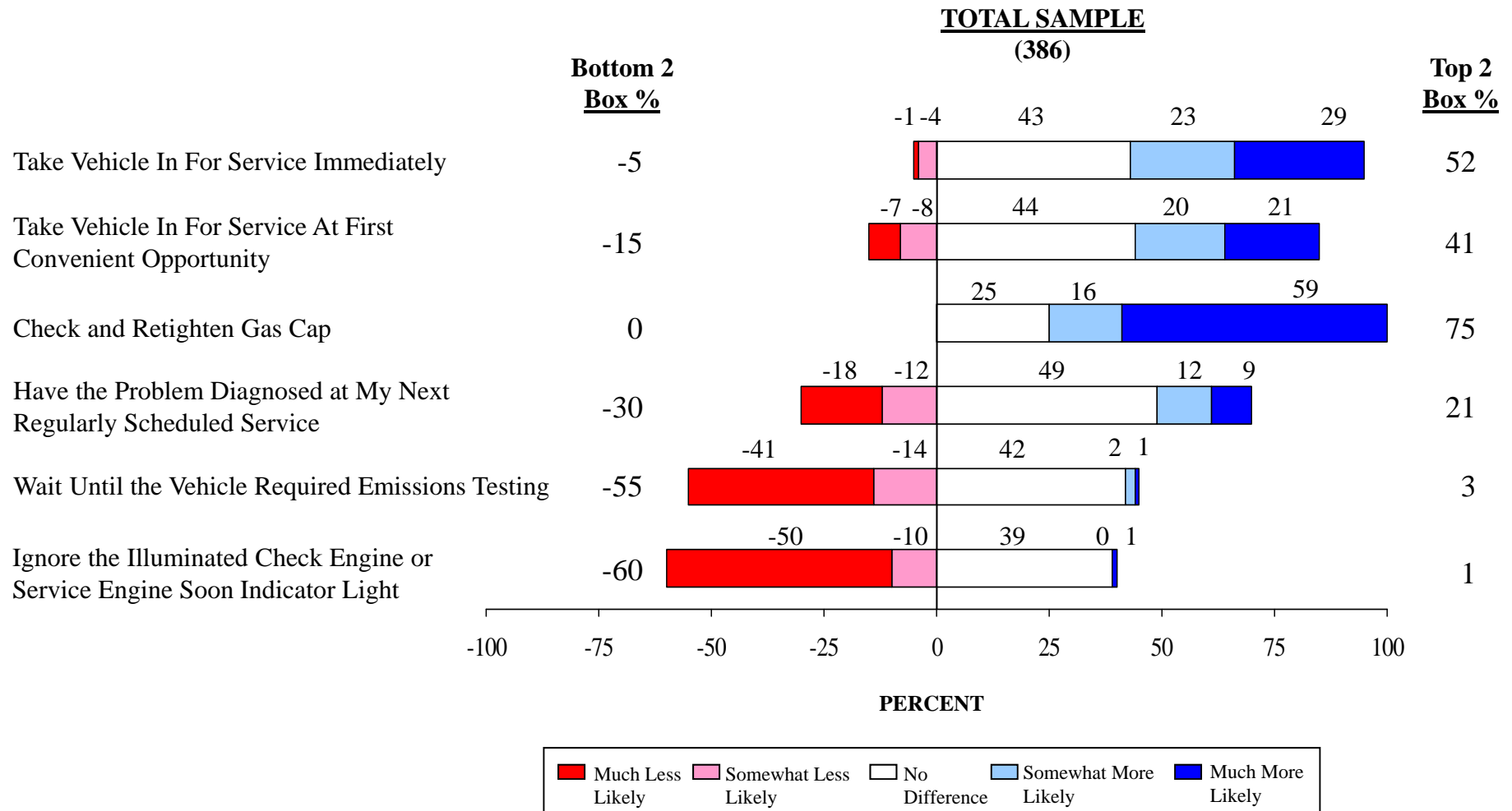
Respondents indicated less likelihood of inappropriate actions that would have a less desirable impact on emissions issues:

<i>Have the problem diagnosed at next regular visit</i>	30%
<i>Wait for required emissions testing</i>	55%
<i>Ignore the CE/SES</i>	60%

The overall results of the CleanScreen notice and its information appear to be highly effective in influencing motorists' attitudes toward CE/SES issues and favorable reactions.

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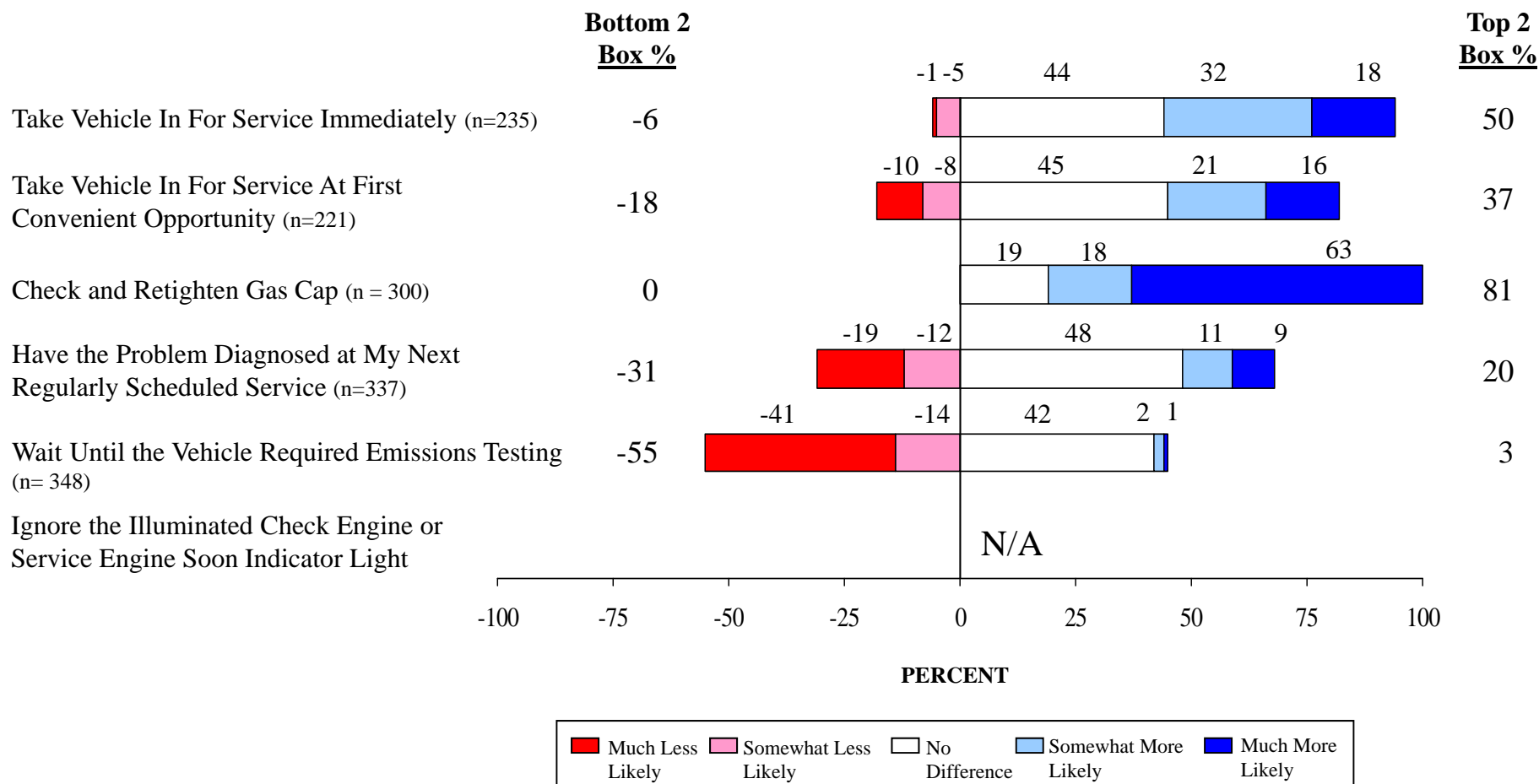
## How Has Your Likelihood Of Each Of the Following Actions Changed As A Result Of Having Received The Information Included In The CleanScreen Mailing?



**CHART 105**

## How Has Your Likelihood Of Each Of the Following Actions Changed As A Result Of Having Received The Information Included In The CleanScreen Mailing?

### Among Those Not Currently...



### **Overall Reactions To the CleanScreen Program**

Overall reactions for the CleanScreen program among this group of survey respondents is highly positive in a number of dimensions. Ninety-four (94%) had redeemed their CleanScreen registration notice [Chart 107]. It is reasonable to expect this to be strong among those returning the questionnaire. Overall redemption rates may be lower.

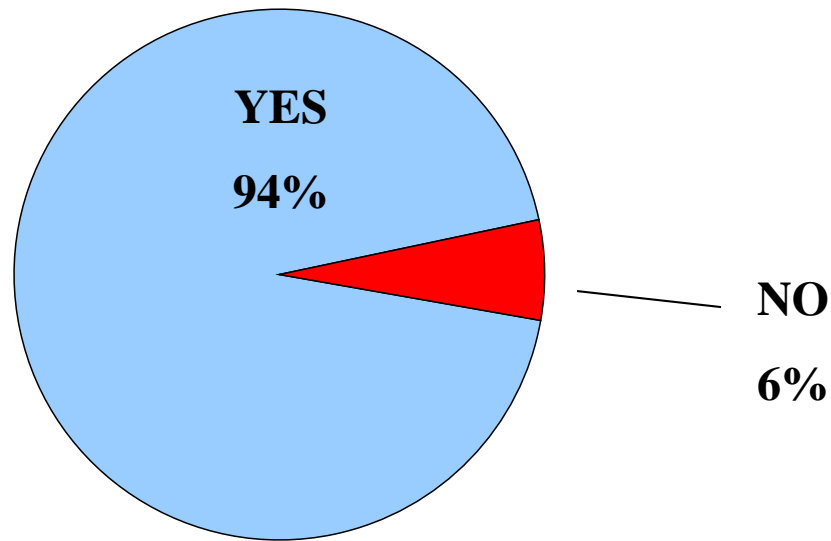
Fully 98% of respondents would recommend that the CleanScreen program be continued in Williamson County: 86% Definitely, 12% Probably [Chart 107].

The program's greatest strength in the eyes of motorists is its "convenience and efficiency," 91% [Chart 108]. "Contributing to a cleaner environment" is mentioned only infrequently, a logical response as the program only identifies "clean" vehicles.

Overall Opinion [open-end] has about 60% saying simply that they "like the program," "it's a great idea". [Chart109]. This is supported by a secondary focus on the convenience issues.

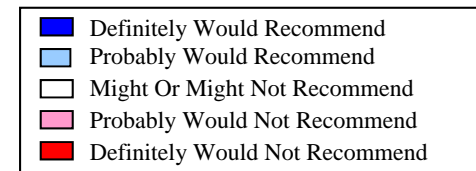
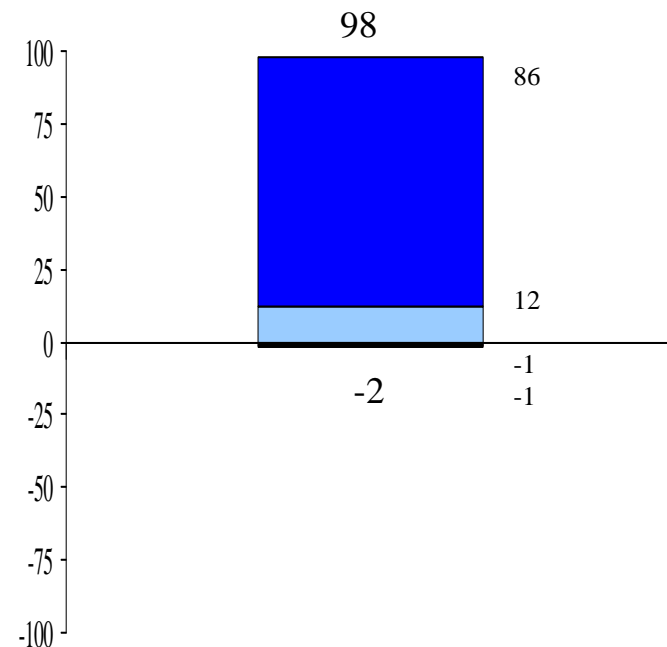
**Did You Redeem Your CleanScreen Notice?**

(n=371)



**How Likely Would You Be To Recommend  
That Williamson County Continue To Use  
The CleanScreen Program?**

(n=382)





**What Do You See As Some Of the CleanScreen Program's Benefits To You, Personally?**

	<u>Total Sample</u> (386) %	<u>Have Experienced A CE/SES Light</u> (205) %	<u>Have Not Experienced A CE/SES Light</u> (181) %
<b>[NET]: CONVENIENT / EFFICIENT</b>	<b>91</b>	<b>90</b>	<b>93</b>
- Saves Time / Faster	54	57	50
- Saves Waiting In Line At Station	26	28	23
- Convenient	24	19	30
- Saves Trip	12	12	12
- Saves Money	6	6	6
Cleaner Environment / Less Pollution	6	7	5
Informative / Helpful	4	6	3

## What Is Your Overall Opinion Of the CleanScreen Program?

	<u>Total Sample</u> (386) %	<u>Have Experienced A CE/SES Light</u> (205) %	<u>Have Not Experienced A CE/SES Light</u> (181) %
<b>[NET]: CONVENIENT / EFFICIENT</b>	<b>42</b>	<b>48</b>	<b>36</b>
- Convenient	22	24	19
- Saves Time / Faster	11	13	9
- More Efficient / Easy	10	10	9
- Saves Waiting In Line At Station	7	8	7
- Saves Trip	3	4	2
 Great Idea / Like It	 62	 59	 65
 Informative / Helpful	 5	 2	 8
 Advanced Technology / Progressive	 4	 4	 3

### **Ratings Of the CleanScreen Program**

Respondents were asked to rate the value of the CleanScreen program on a slate of six distinct characteristics. [Chart 110]. The strongest scoring of these all relate to the program's convenience and efficiency for the motorist, all scoring at over 95% "Very" or "Extremely" valuable.

*Saving Inspection Money for the State* and *Helping Protect the Environment* are only somewhat less valuable with scores (Extremely/Very) of about 80%.

*Saving Money for the Motorist* is the least valued, but still scores strongly positive.

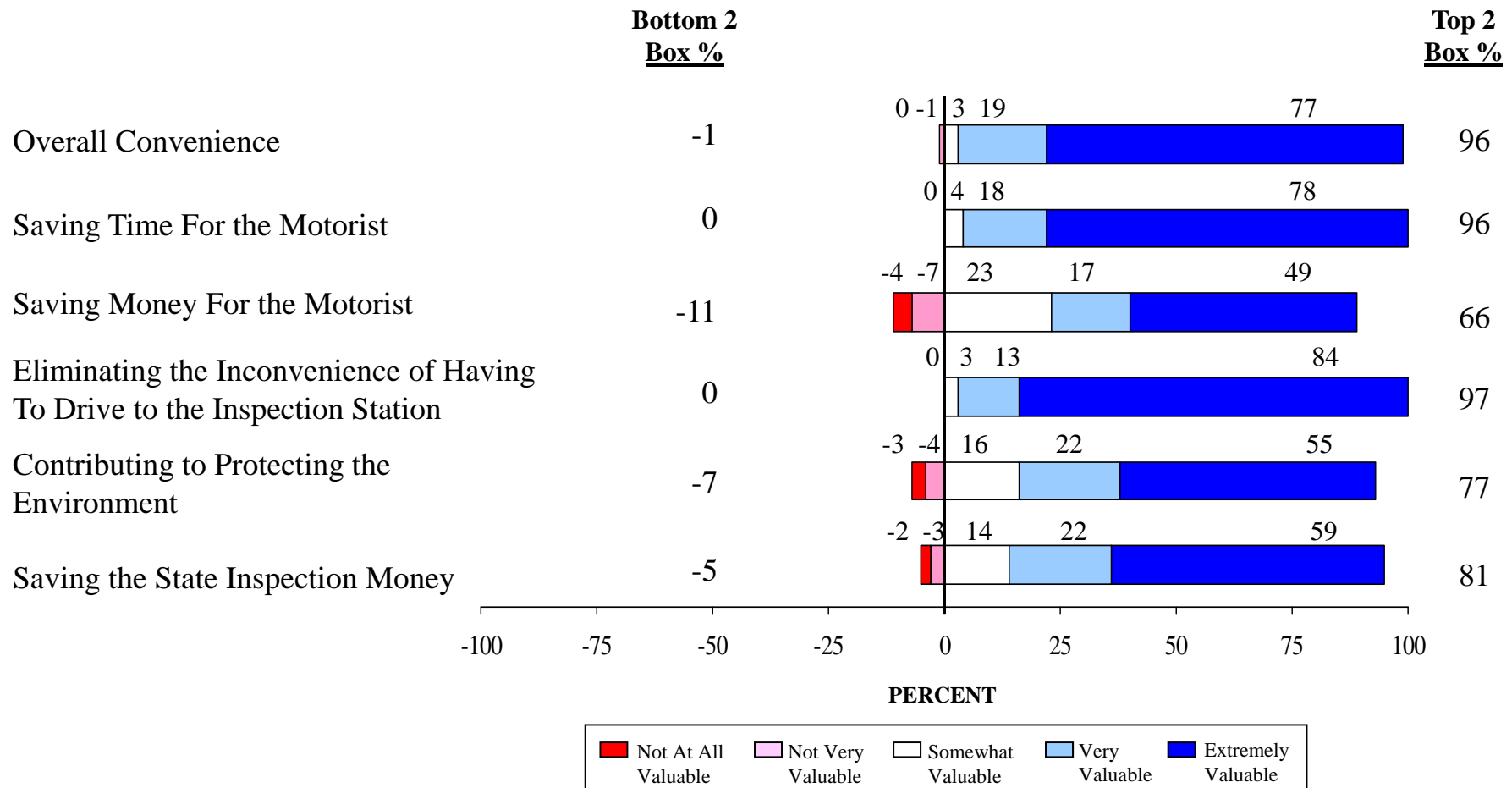
The high overall value of the CleanScreen program is dramatically clear to these participants.

Respondents indicate high levels of agreement with statements that describe the program positively [Chart 111]. Ninety-five (95%) agree that *The Program Reduces Inconvenience and Costs of the Inspection Program for Motorists and for the State*. Eighty-five (85%) agree that the *Technology is a Major Advance in Keeping Air Clean*. A similar proportion agree that *Everything About the Program is Great*.

All these attitude dimensions show a highly positive response to and liking for the program.

## How Would You Rate The Value Of The CleanScreen Program On The Following Features / Characteristics?

(n=386)



**CHART 110**

## How Much Would You Agree Or Disagree With Each Of The Following Statements About The CleanScreen Program?

(n=381)

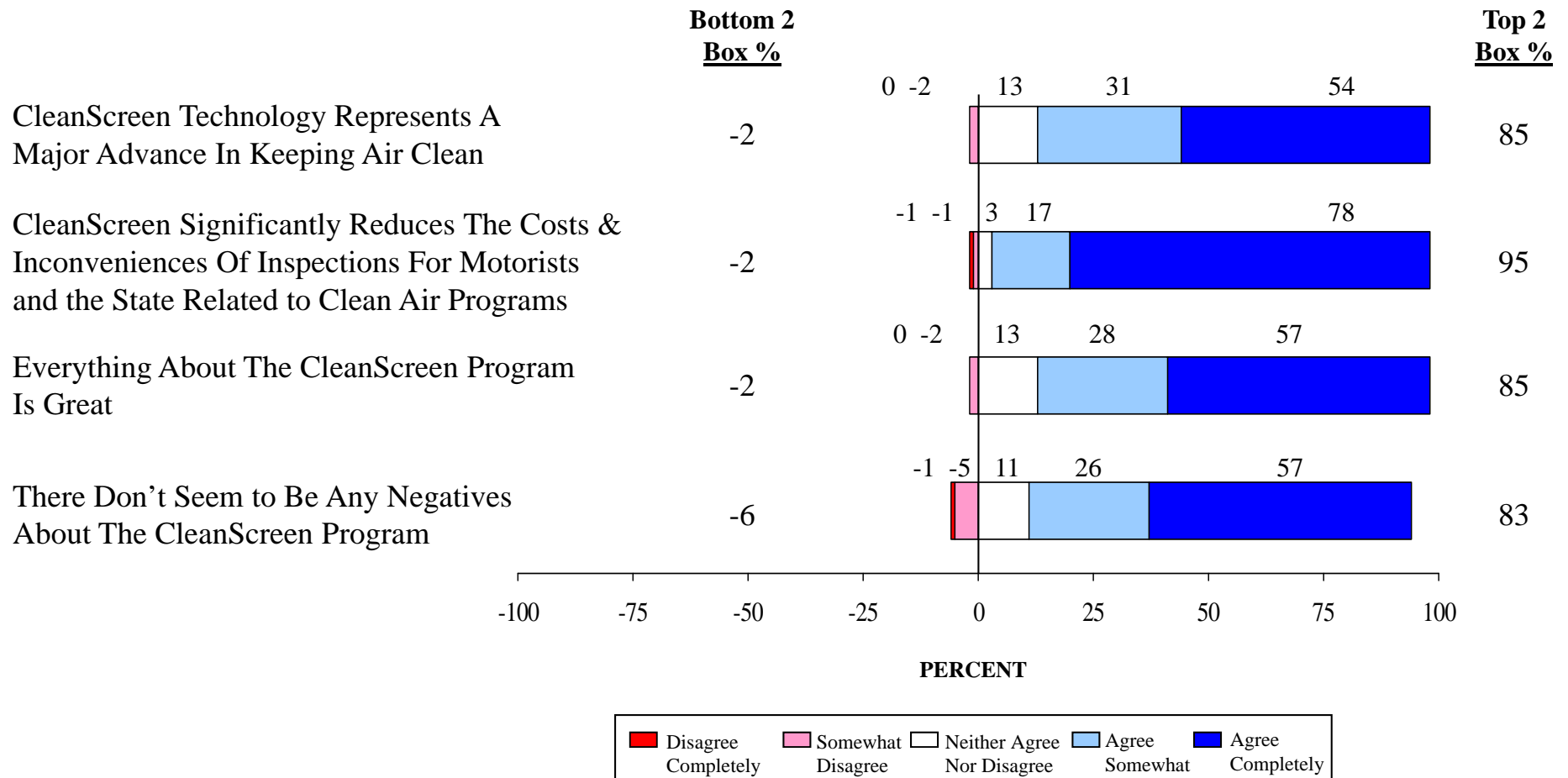


CHART 111