

The political climate for stronger action on water metering policies in Metro Vancouver:

A survey of elected council members and mayors

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Survey Highlights



68% of surveyed council members in Metro Vancouver are in favour of mandatory water metering while only 19% are against and 14% remain neutral.



An overwhelming majority of council members are in favour of exploring the benefits of water metering in their city, especially among those who are undecided on mandatory water metering.



We find that arguments about fair rate structures are less likely to convince skeptics of water metering. Instead, arguments about the value of the data generated and sustainable resource use are much more likely to be effective.



Over 70% of council members do not have a strong position when associating water metering with housing or management costs, suggesting that a significant number of council members would be receptive of evidence on this topic.



Council members from jurisdictions that currently have no policy in place express significantly less support for water metering than those with mandatory or semi mandatory policies. These jurisdictions represent the biggest challenge for advancing water metering in Metro Vancouver.

Water metering has been on the municipal agenda for over a decade in British Columbia (BC) with some cities advancing to partial or full implementation very recently. According to the BC Municipal Water Survey (2016), the metering coverage rate in the Province was approximately 26% percent of residential water connections. This places BC far behind the rest of Canada, where the last national survey estimated that 72% of households in the country were equipped with water meters (Environment Canada, 2011).

Various experts have argued that water meters are associated with more prudent water use (Inman & Jeffrey, 2006; Renzetti, 2009). Data from Environment Canada shows that metered households use 39% less water per person than unmetered households. Water metering programs in Ontario have reduced water consumption by between 15 and 27% (Brooks & Holtz, 2009) while Ottawa reported savings between 10-40% (Inman & Jeffrey, 2006), and the average unmetered household in Calgary uses 50% more water than metered households (Environment Canada 1993 cited in Gan, 2000).

Additionally, water meters are essential to identify leaks. Approximately 16% of the total drinking water supplied in the Metro Vancouver region is lost due to leaks (Ferry, 2004). Only a minority of households have water meters in this region, and yet this part of the world has one of the highest water leak rates in North America, with water pipes leaking more here than in Toronto, Calgary, Victoria, Portland, or Seattle (Simp-

son, 2001). Water metering also provides valuable data on household consumption that are essential to understand water use patterns and to evaluate the effectiveness of water conservation programs and policies (Honey-Rosés 2019).

However, citizens throughout the province have voiced opposition to water metering and accused advocates of water meters as being alarmists given the abundance of water in British Columbia. Critics also accuse water metering policies as being too costly (McMartin, 2004), and unnecessary and negatively impacting low-income residents and vulnerable groups (Bakker, 2001). Some economists have questioned if water metering will always produce net benefits, since the costs of installation may outweigh the gains to society (Chambouleyron, 2004). In response to the economic arguments, environmental advocates have pointed out that these cost-benefit analysis do not incorporate the negative externalities of water use, nor the non-use values of in-stream flows (Loomis, Kent, Strange, Fausch, & Covich, 2000). Additionally, arguments have been made that water metering leads to the commodification and might affect our understanding of water as a human right (Bond, 2016).

The Challenge

While cities such as Victoria, West Vancouver, and Richmond have been able to provide a water meter to nearly all residents, much of British

Columbia and many cities in Metro Vancouver are far behind national coverage rates. Among those cities that do not have full metering coverage, some now require that water meters be installed in all new homes or during major renovations, with the long term goal of slowly introducing water meters in the new housing stock. Other cities have no water metering policy and have been hesitant to introduce this measurement technology (BC Municipal Water Survey, 2016). The decision to adopt mandatory water metering policies is made by each elected city council. Furthermore, there are many issues that are competing for the attention of council members and city staff. Attention and resources can only be focused on those issues where there is broad consensus that the issue is a priority and where decision makers are confident that tangible progress may be expected in the near term.

Because water metering is not high on the political agenda, it is difficult to gauge the views of city council members on this policy decision. Experts, environmentalists, city staff, regional planners, provincial officials and the general public, are generally unaware how city council might respond to proposals about water metering. Moreover, city staff or regional planners may not know the underlying reasons behind a council member's policy position in favour or against a proposal. Thus, it is important to understand both what the council member's position might be, and the values and arguments that sustain these views.

Objective

The goal of this study was to assess the level of political support for advancing municipal water metering policies in Metro Vancouver, as well as understanding the values and reasons behind such levels of support. Understanding the political climate can help technical experts assess the feasibility of pushing for more aggressive water metering policies. Insight from this report may help municipal officials frame a discussion about water metering that is both technically appropriate and politically feasible. Additionally, this report may allow for meaningful discussion by presenting evidence that confirms or disproves the most repeated arguments on the topic. The research is timely as a new council was elected in October 2018, and there is little knowledge about the opinion of this body of decision-makers on this issue.

Methodology

The survey was sent to all councillors and mayors in cities, municipalities and districts of Metro Vancouver elected in October 2018 (N=131). The research design and statements were developed and modified in the context of the Water Planning Lab at the School of Community and Regional Planning (SCARP) at the University of British Columbia (UBC). The survey used agree/disagree statements to measure the level of support or opposition for water metering and related statements. The research method was reviewed and approved by the Behavioural Research Ethics Board of the University of British Columbia (H18-03624).

Survey statements aim to capture council members' views on mandatory water metering, the benefits of water metering, its potential impact on housing costs, its potential contribution to water conservation, the management cost for the City and the perception of water as a human right.

We used agree/disagree statements to measure how strongly elected officials felt about a particular issue. In this way, we assess if council members already have a firm position or might be open to potentially changing their views.

The survey was prepared to maximize participation through the following principles:

- i) Quick: The survey could be completed in less than 3 minutes.
- ii) Flexible: We offered respondents the ability to respond through a range of formats.
- iii) Anonymous: To assure full comfort and honesty from respondents.

To recruit participants, we sent a personalized email to each council member explaining the scope and goal of the survey, as well as the confidentiality of their identity. This first email gave participants alternative formats on how to respond to the survey: (a) web-based survey; (b) in-person

survey (c) phone or video call. This first email provided a personal link to the web-based survey. In cases in which no response was received, a second email was sent to remind potential participants about the survey. No participant requested an in-person survey or the phone/video call, and all participants preferred the web-based survey that was mobile friendly.

Surveys were distributed between 27 May and 24 June 2019. No incidences or duplicate responses were reported in Qualtrics' Expert Review and a 100% response quality was assigned to the final results.

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We received 45 survey responses from a total of 131 surveys sent (34.3% response rate). We received survey responses from 14 jurisdictions in Metro Vancouver (Table 1). The councils from Richmond and Bowen Island were the most responsive to the survey (5 each), while we did not receive any responses from the City of Burnaby, the City of White Rock or the City of Port Moody.

In the following pages we present the council members views on a series of issues related to water metering and management. We start with the survey statement that measured participants' level of support for

Jurisdiction	Number of responses	Metering Policy
Bowen Island	5	Mandatory
Richmond	5	Semi-mandatory
City of Langley	4	Mandatory
District of West Vancouver	4	Mandatory
Port Coquitlam	4	No policy
Vancouver	4	Semi-mandatory
Coquitlam	3	No policy
District of North Vancouver	3	Semi-mandatory
Maple Ridge	3	Semi-mandatory
Surrey	3	Semi-mandatory
City of North Vancouver	2	No policy
Delta	2	No policy
New Westminister	2	Semi-mandatory
Pitt Meadows	1	No policy
Burnaby	0	No policy
White Rock	0	Mandatory
Port Moody	0	No policy

Table 1. Jurisdiction of elected officials who responded to the survey.

mandatory water metering. Their responses were grouped by the type of policy that each jurisdiction had in place, regarding residential water metering. Jurisdictions were classified as: Mandatory, Semi-Mandatory or No Policy¹

In the remainder of the survey statements, we present the results in two ways. The pie chart aggregates the responses for all survey respondents,

while the bar charts disaggregate the responses according to their level of support for mandatory water metering (obtained in statement 1), which ranged from strongly in favour (agree) to strongly against (disagree). By crossing each survey responses with their views on mandatory water metering, we are able to engage in deeper analysis and obtain insight into the possible reasons, values and beliefs that sustain the council members' views.

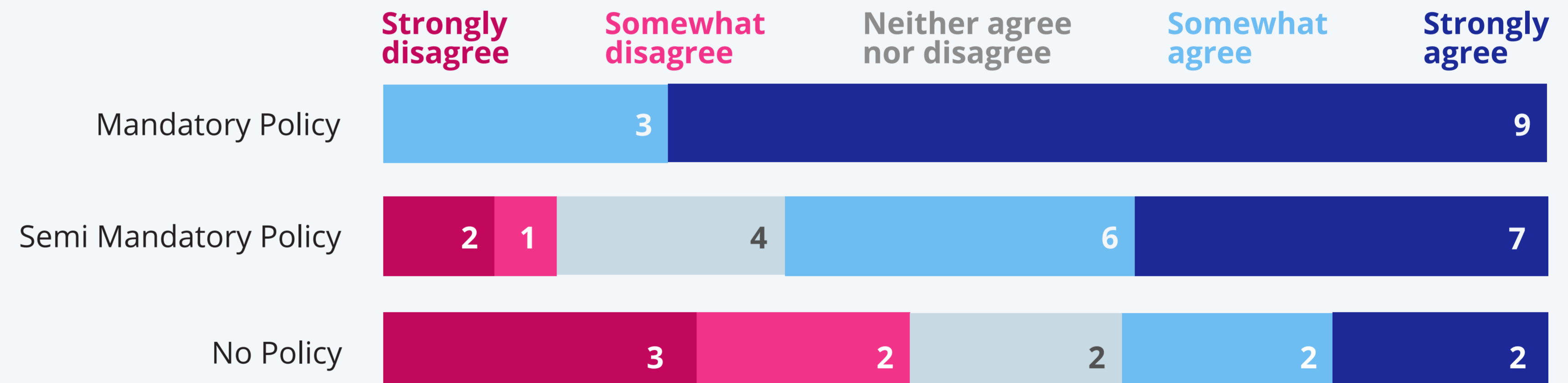
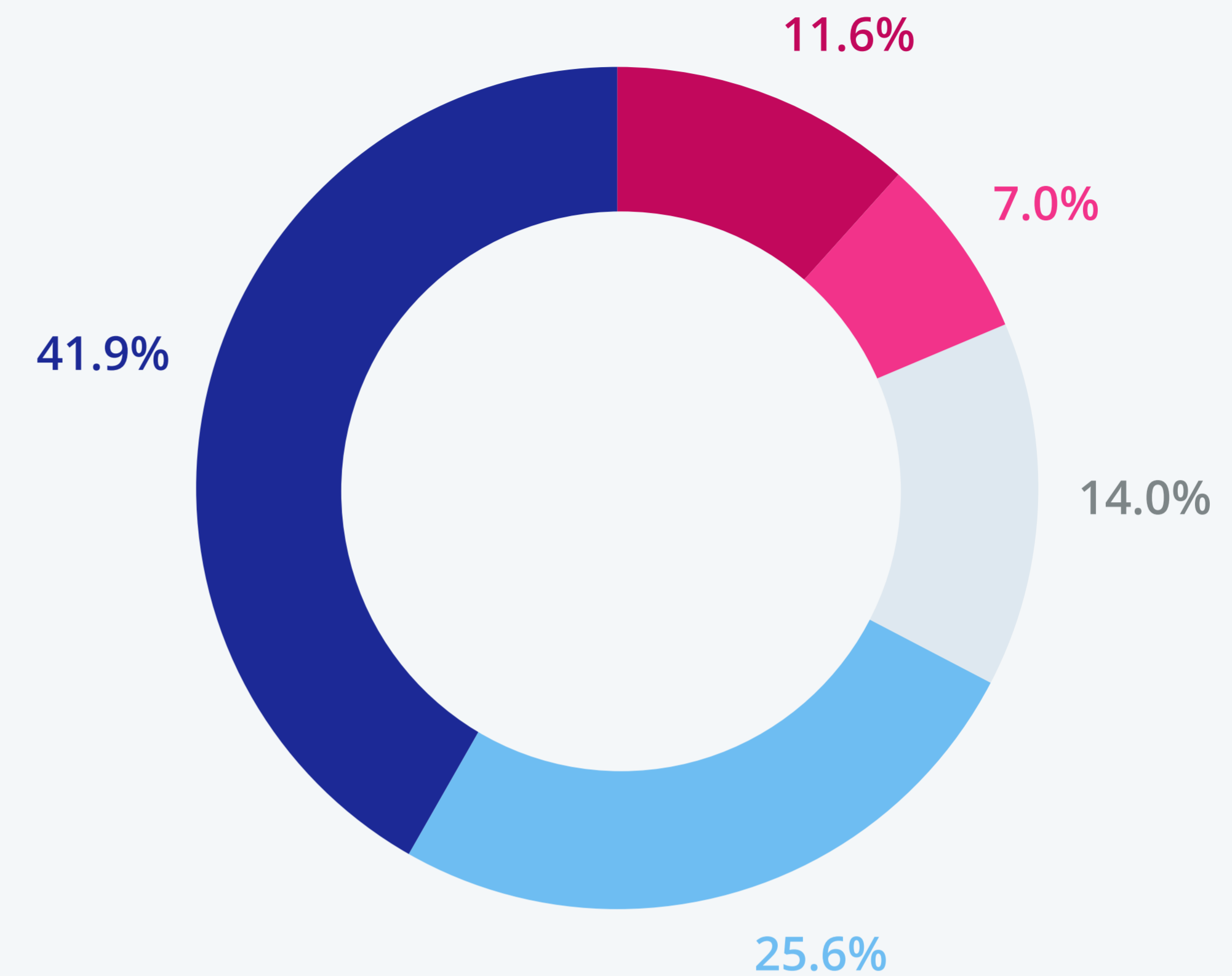
¹ As no updated and comprehensive policy analysis of residential mandatory water metering in Metro Vancouver was available at the municipal level at this time, residential water metering coverage in 2017 (GVWB, 2019) was used as a proxy to estimate and classify jurisdictions' policy. To be classified as 'Mandatory', the city must require water meters on all single family and multi-family homes. Municipalities that have 'Semi-Mandatory' policy require meters for a subset of homes, such as for new homes or with major renovations, and have partial coverage according to most recent Metro Vancouver report (GVWB 2019). For 'No-policy', 0% coverage was required in single and multi-family homes.

RESULTS

1. I support mandatory water metering in my city.

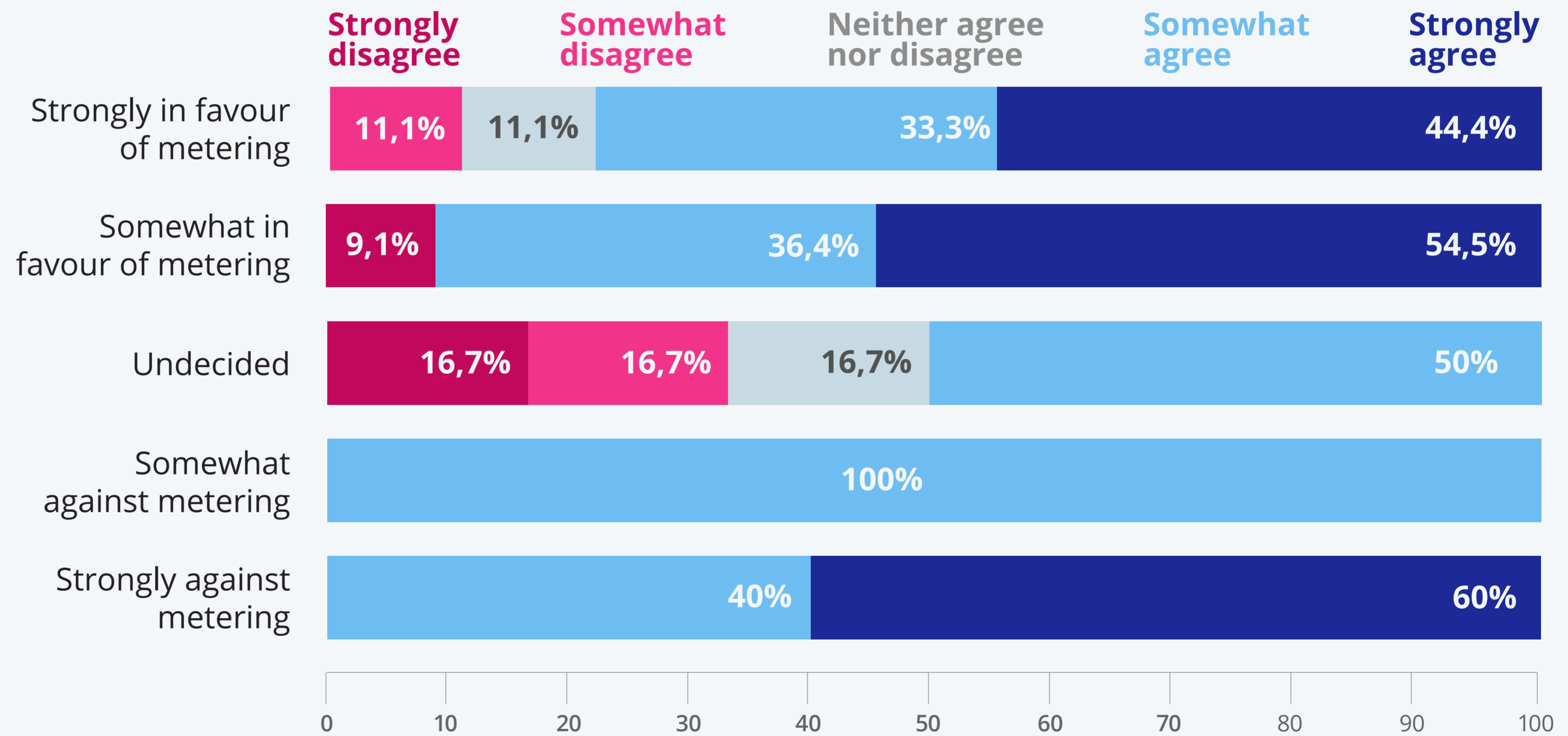
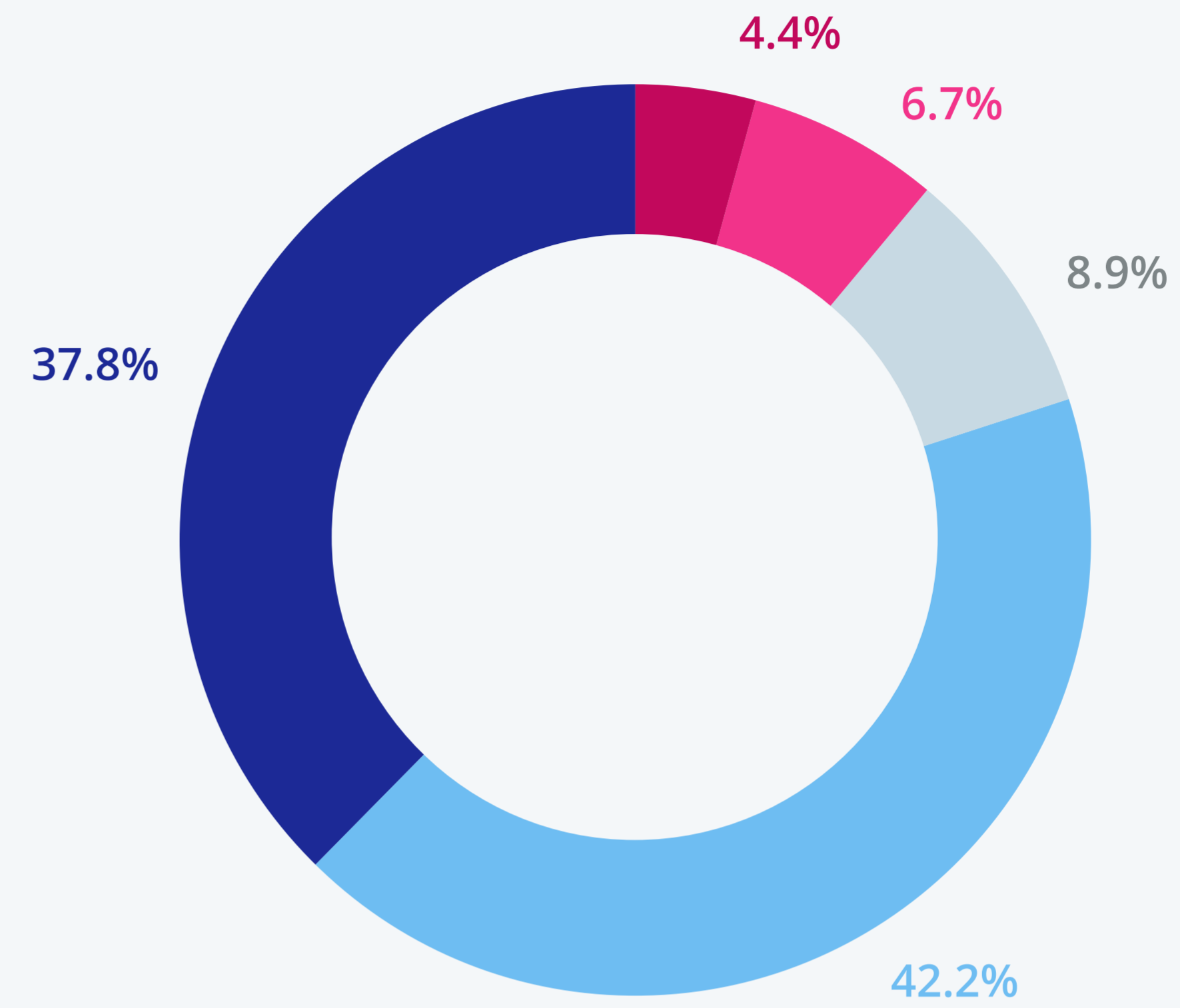
We find that 67.5% of elected officials surveyed are in favour of mandatory water metering in their city, while only 18.6% are against the idea. The most common response to this statement was to be strongly in favour of mandatory metering, with support of over 40%. In aggregate, there appears to be a favourable political environment for advancing mandatory water metering in Metro Vancouver. At the same time, nearly half of the council members surveyed (46.6%) do not have a strong position on this issue (somewhat disagree, neither agree nor disagree and somewhat agree). Given that nearly one half of council members do not have strong views on the subject, we would expect that city specific analysis and technical reports are likely to be important in changing or consolidating their views on the issue.

The elected council members views on mandatory water metering are strongly correlated with the municipalities existing metering policy (GVWD, 2019). In jurisdictions that already have mandatory water metering, respondents were unanimously in favour of metering (100%). Support diminishes slightly, but remains strong among council members who govern in a city with a semi-mandatory policy (65%). Finally, in cities that have no metering policy, the views are mixed, with a nearly equal distribution in favour and against a mandatory metering policy. This suggests that the political climate in favour or against metering is contingent on what the city already does. The unanimous support among council members that have already adopted mandatory metering suggests that there are virtually no regrets. Furthermore, the support for universal metering among those with semi-mandatory policies is also high.



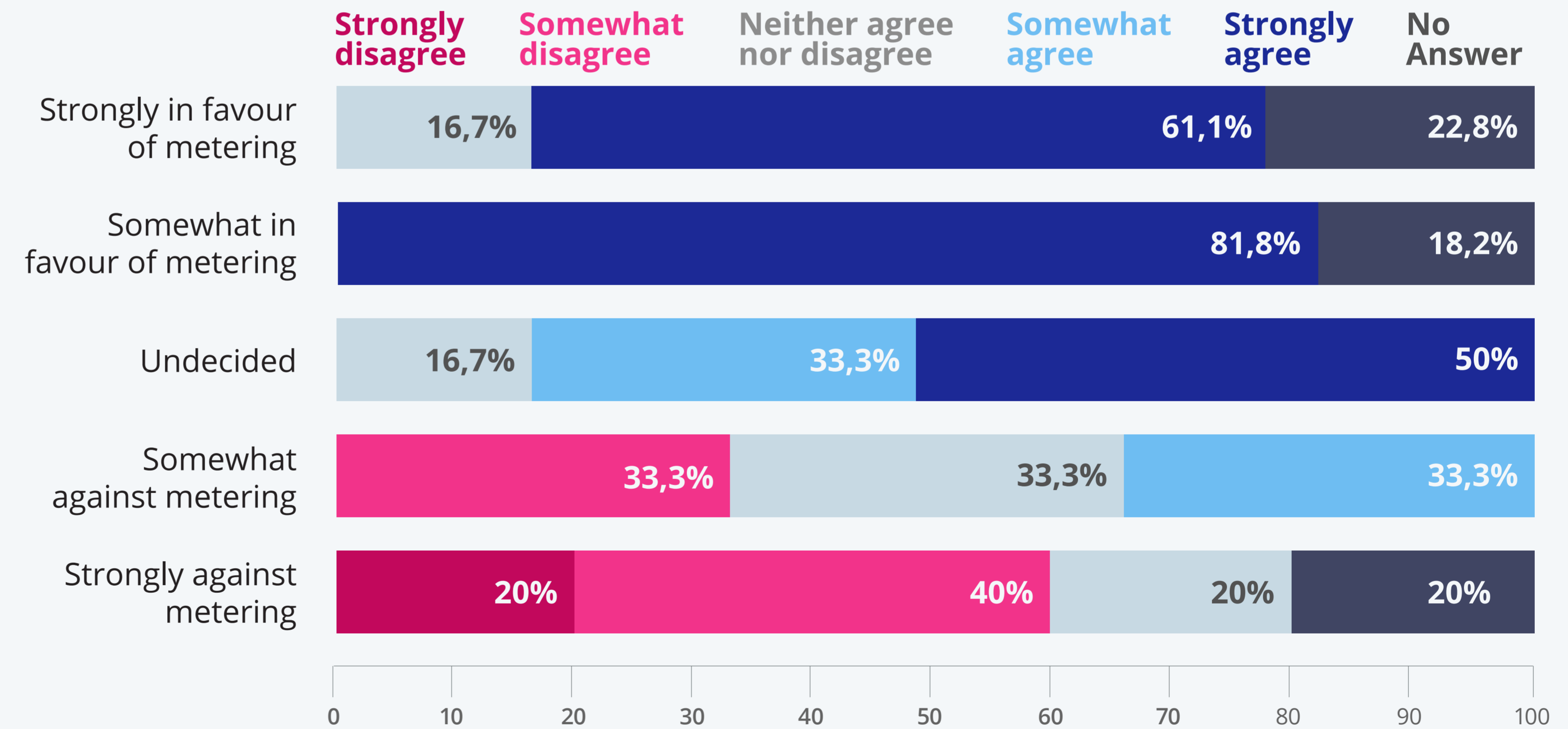
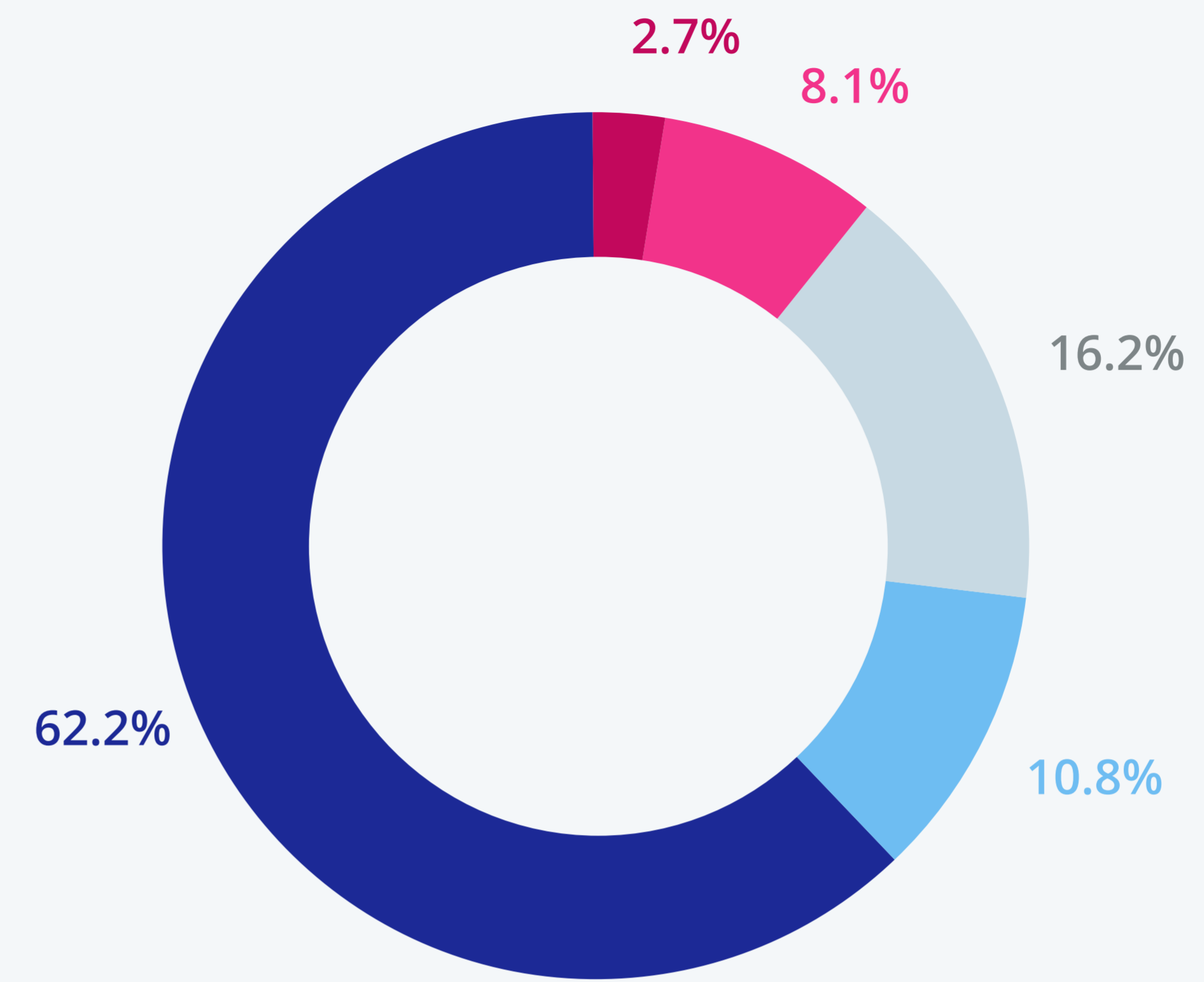
2. Water conservation is a priority for residents in my city.

We find that 80% of council members believe that water conservation is a priority for residents (strongly agree and somewhat agree), while only 11.1% (strongly disagree and somewhat disagree) believe this issue is not a priority for the general public. Since respondents perceive water conservation to be a priority for residents, they will likely not support policy changes if deemed unpopular among the public. The impact of the public's opinion on council members would probably have a greater influence on the 46.6% of council member participants that did not express a strong position on the matter of water metering (statement 1; somewhat disagree, neither agree nor disagree, somewhat agree).



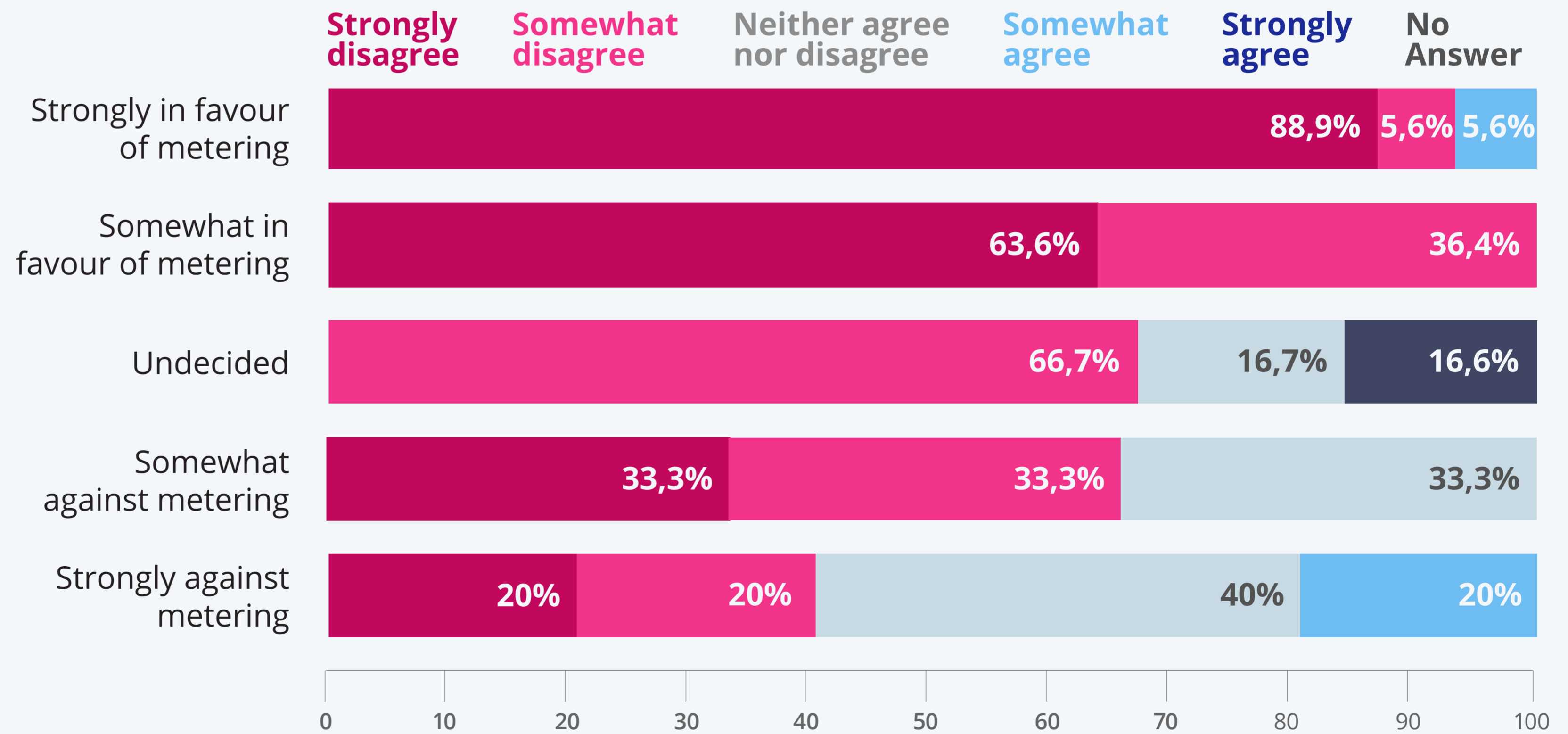
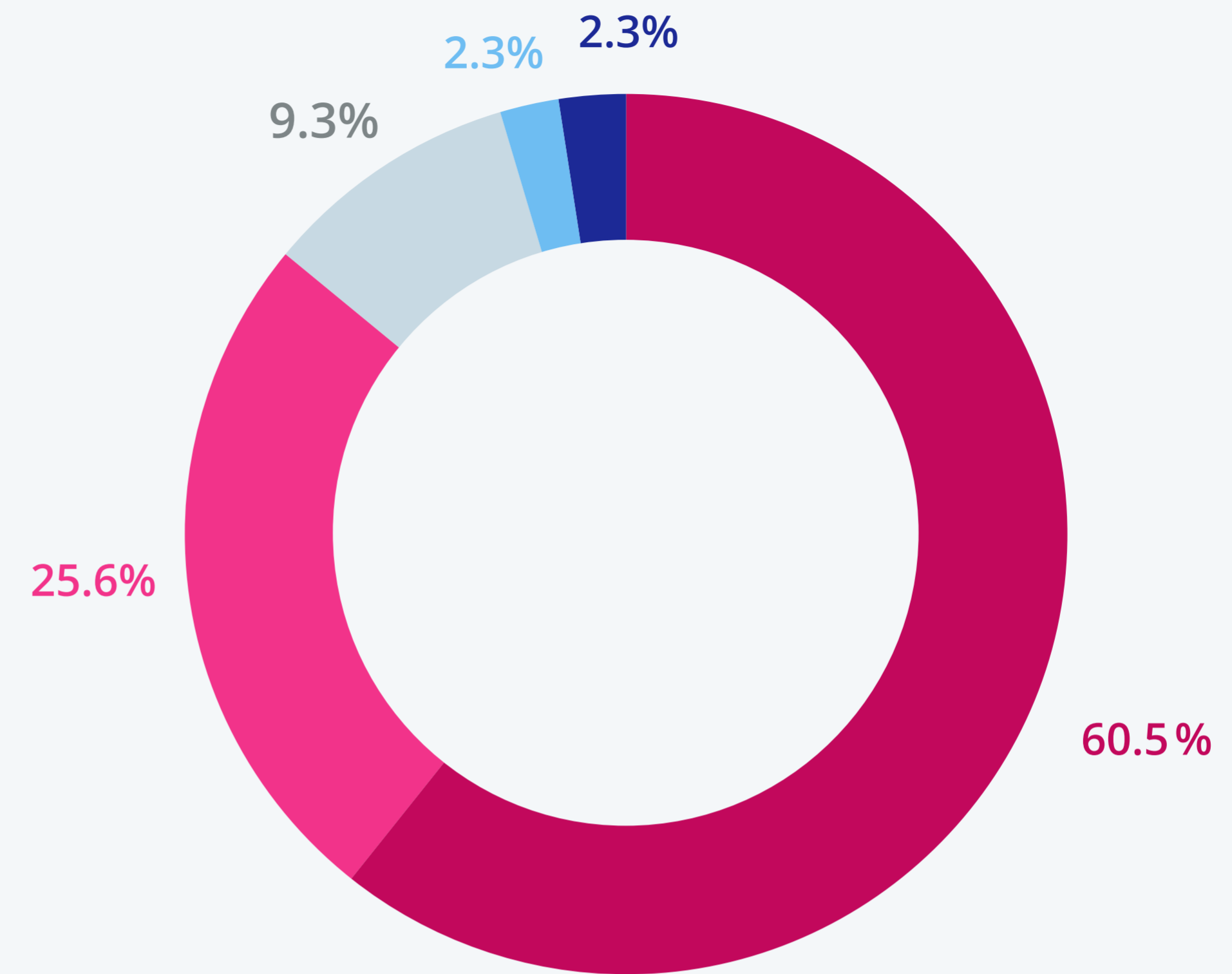
3. I would support an initiative that would explore the benefits of water metering in my city.

73% of participants are in favour of exploring the benefits of water metering in their city, showing that an overwhelming majority of council members are open to learning more about the impacts of this policy. Among those that are undecided on mandatory water metering, 83.3% are in favour of exploring the benefits of water metering. In contrast, none of the respondents that strongly disagreed with mandatory water metering thought that exploring the benefits of water metering was a good idea. This suggests that current opponents to water metering, while in the minority, have very strong views on the subject and are not even interested in exploring the idea further.



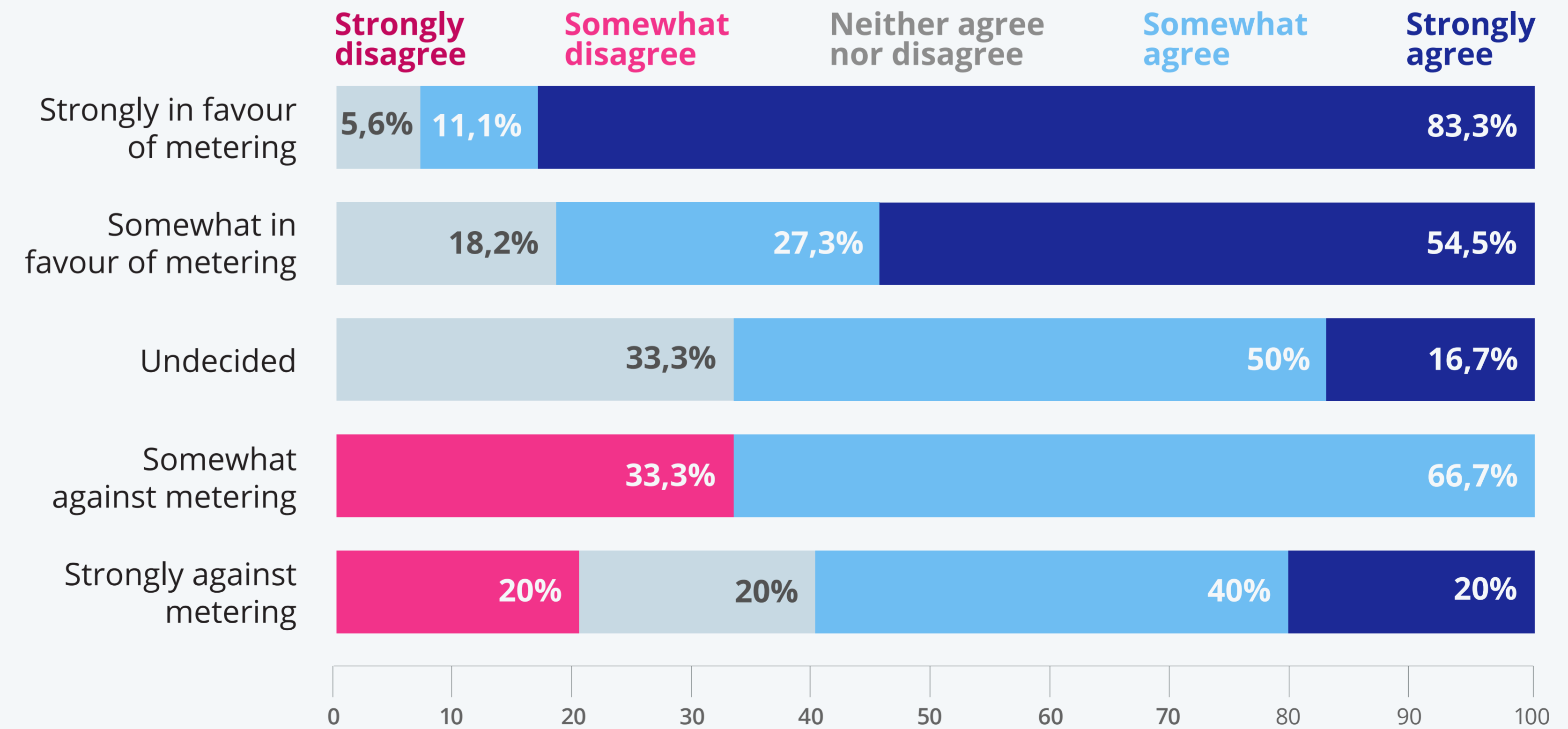
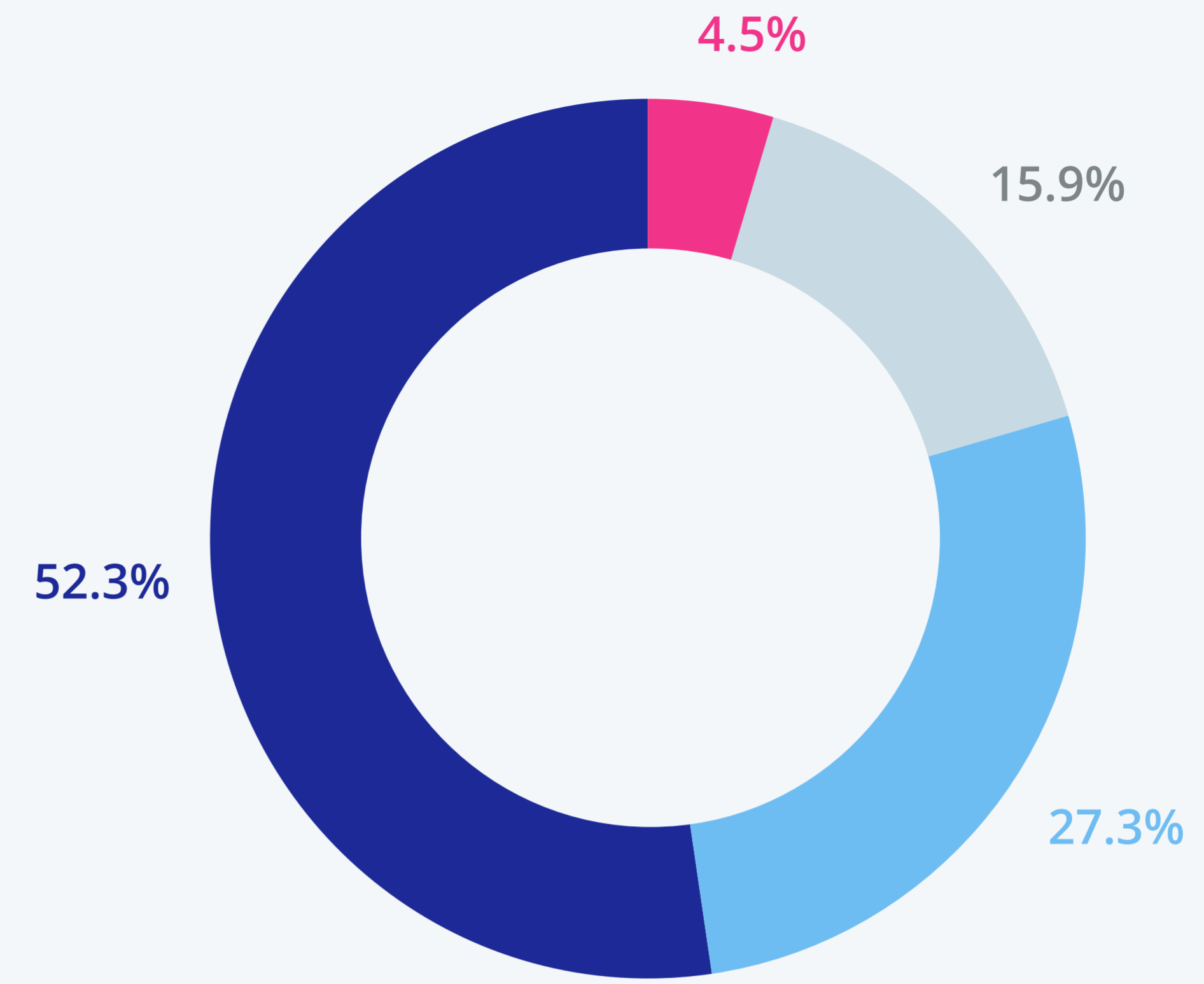
4. We do not need water metering because we have lots of water.

86.1% of participants disagree with the statement that we do not need water metering “because we have lots of water”. Furthermore, only 20% of those that strongly disagree with mandatory water metering –and only 4.6% of all respondents– considered this statement to be true. The debate over mandatory water metering has little to do with perception of water abundance in Metro Vancouver. Meaningful discussion and further research on this issue should not focus on the availability of water, unless perceptions on this topic influence the public’s opinion.



5. Measuring household water consumption in my city would generate valuable data to improve city management.

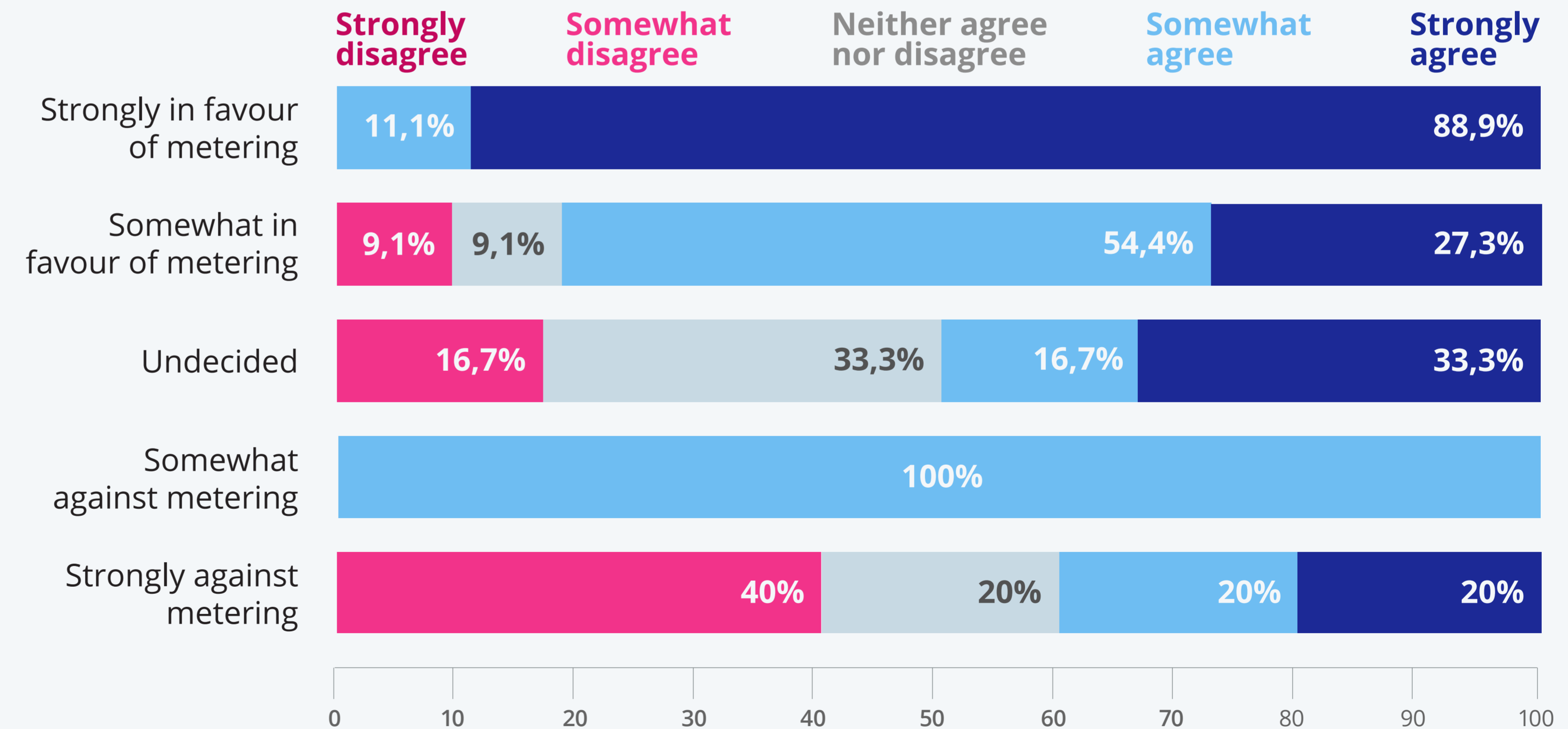
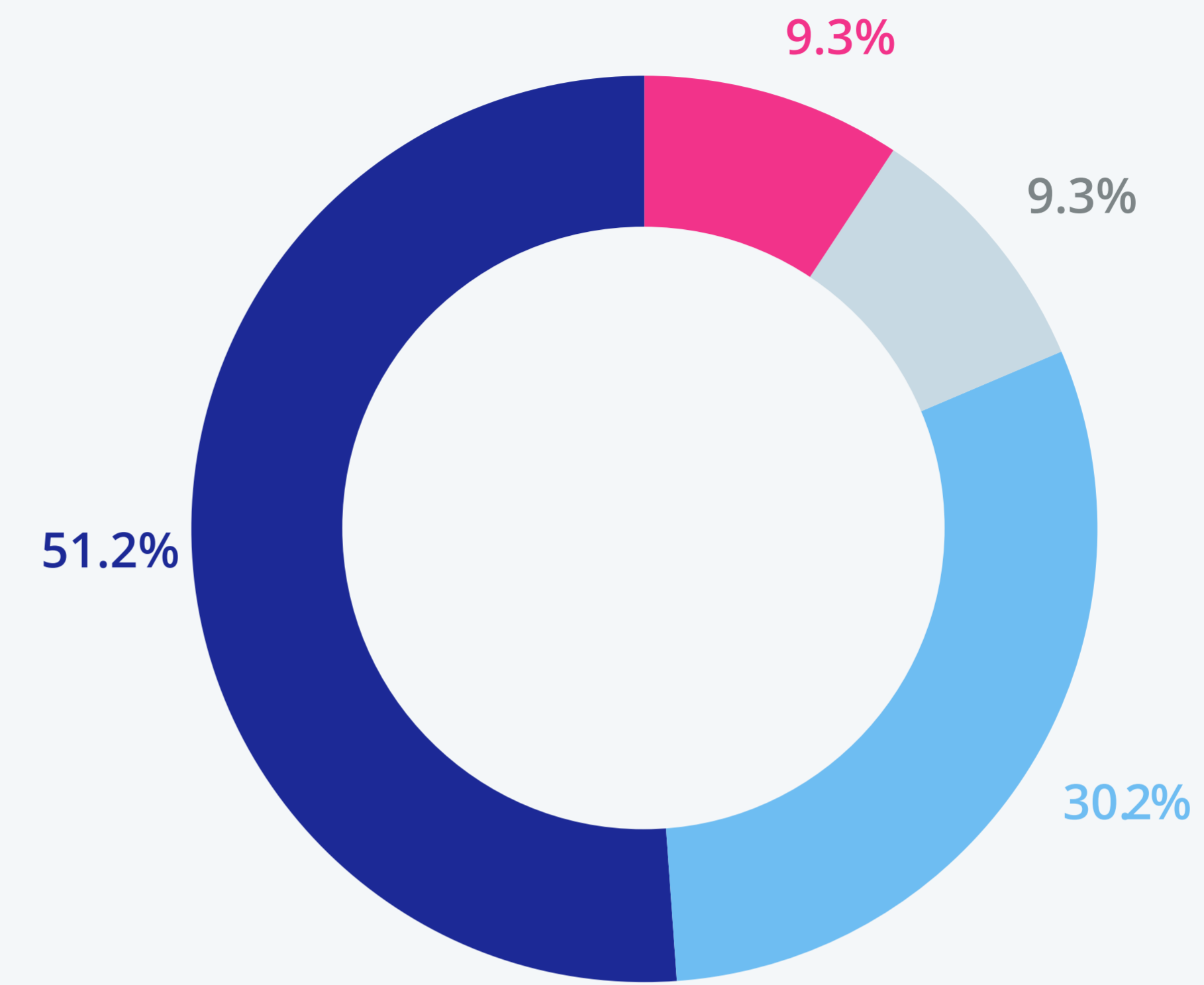
79.6% of respondents agree that water metering would generate valuable data to improve city management. Moreover, among those strongly in favour of mandatory water metering, 83.3% also strongly agree with this statement. Agreement with this statement is also high among all other groups, including those that disagree with mandatory water metering. In this sense, the generation of valuable data can be considered one of the main reasons that explain support for mandatory water metering and could drive further support amongst council members that currently do not support or are undecided on mandatory water metering.



6. Water metering allows for fair rate structures where users pay for what they consume.

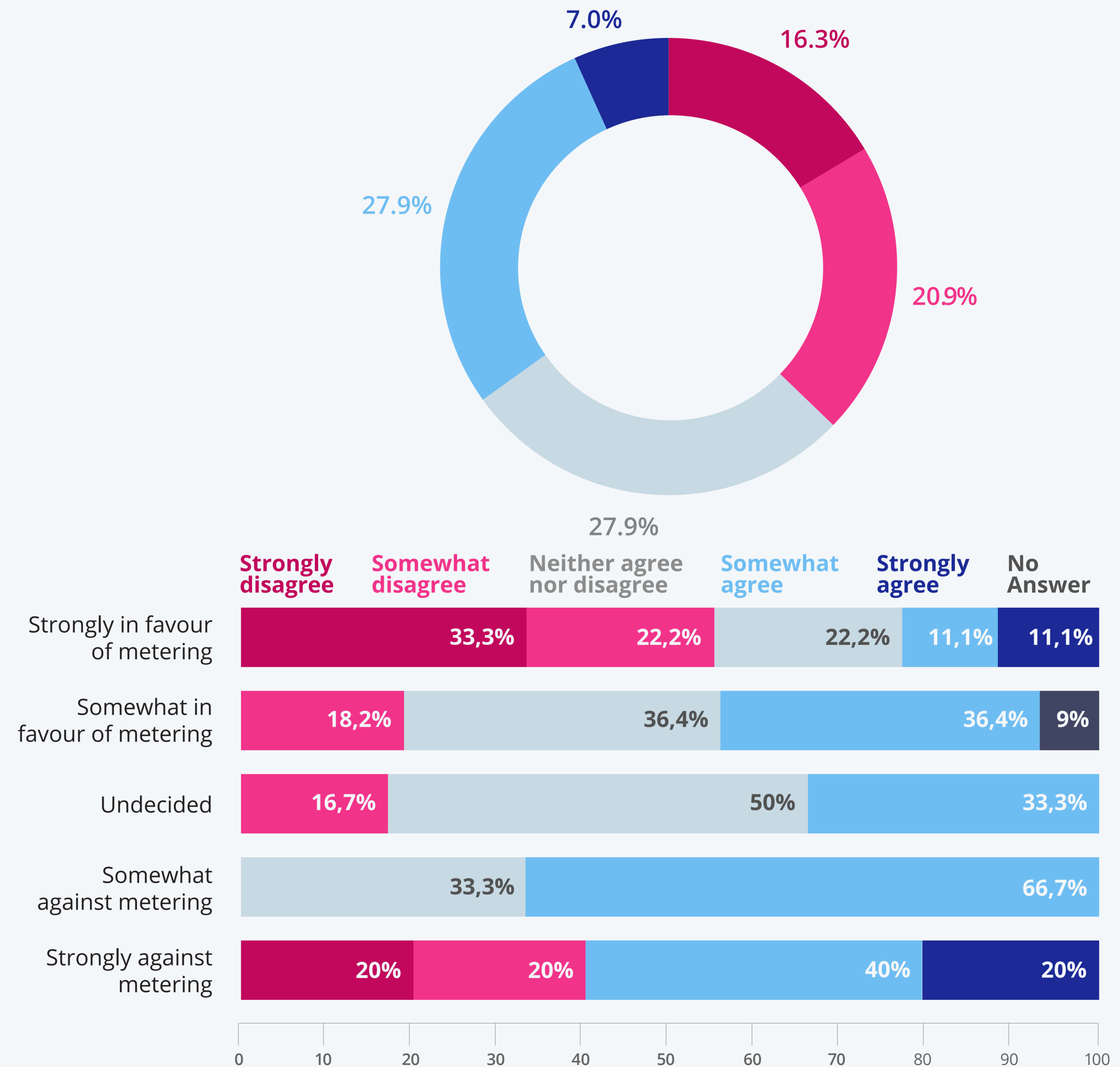
Water metering is a condition sine qua non for any fair rate structure where users pay for what they consume. Nevertheless, 'fair rate structures' are not a necessary outcome of mandatory water metering policies. With this in mind, the goal of this statement was to identify to what extent participants associate water metering with fair rate structures. While 81.4% of participants agree to some extent with this association, examining results crossed with views on metering show that 89% of those that are strongly in favour of mandatory water metering also strongly agree with statement 6. Interestingly though, in all other groups that do not strongly agree with mandatory water metering this association is far from strong.

These results suggest that, although nobody strongly disagrees with this statement, arguments about fair rate structures or pay for service approaches might not mobilize support beyond council members that already strongly agree with mandatory water metering.



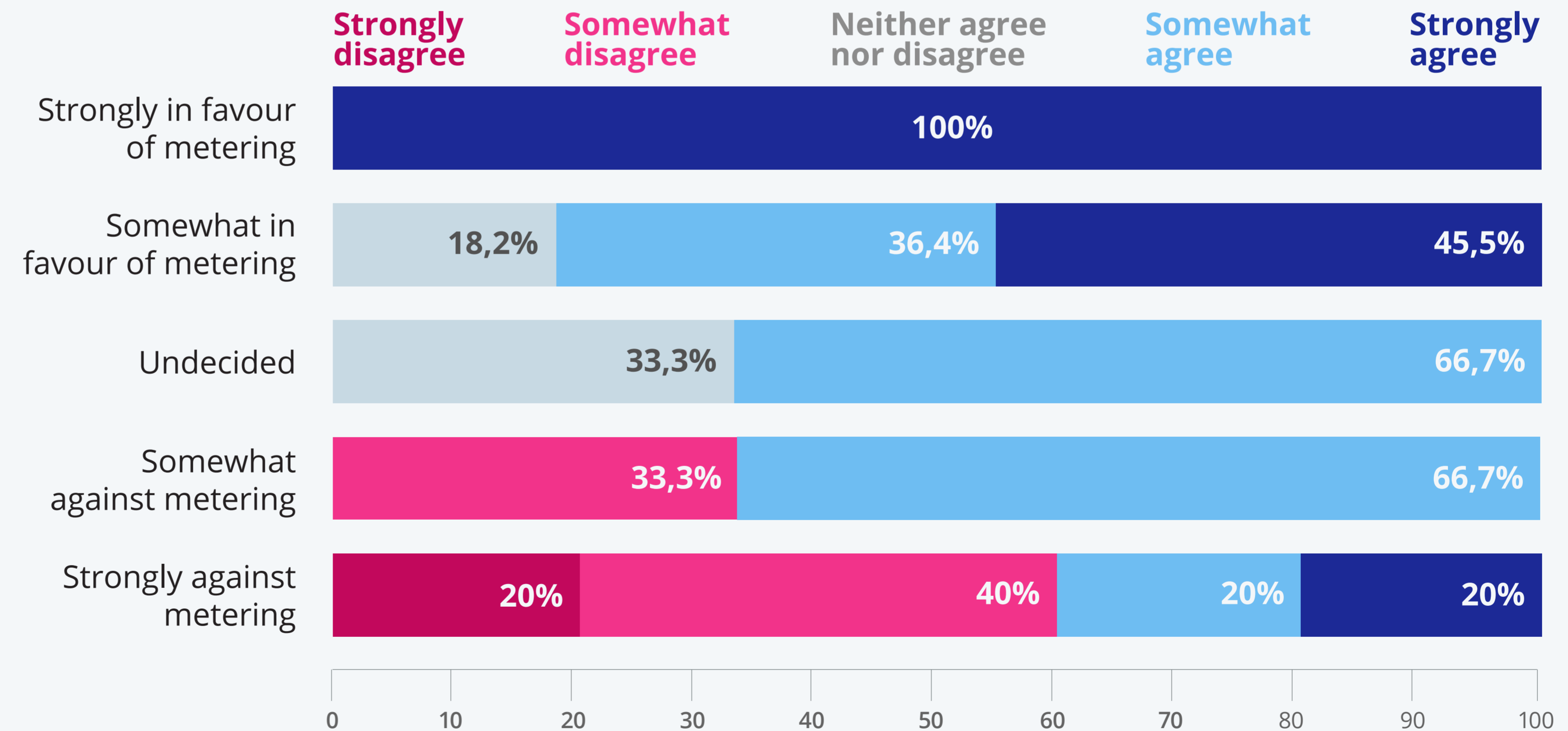
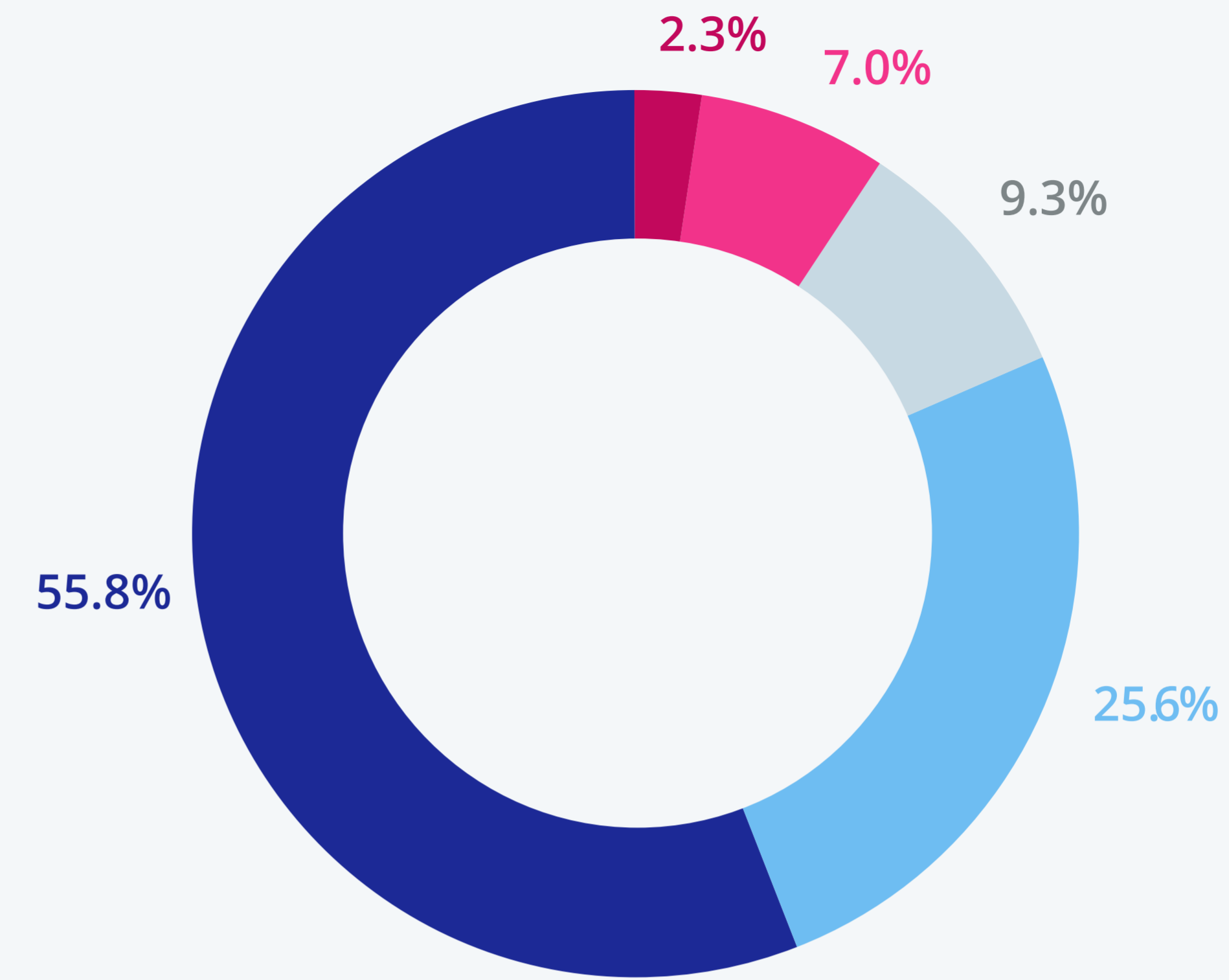
7. A mandatory water metering policy would contribute to an increase in housing costs.

This statement aimed to identify to what extent council members associate water metering costs with another 'hot topic' in Metro Vancouver: housing costs. We find that 37.2% of respondents disagree that metering will increase housing costs, 34.9% agree on some level and 27.9% neither agrees nor disagrees. Of note, among those undecided on the issue of mandatory water metering there is a slight tendency towards agreeing with this statement. In conclusion, future research on the association between water metering and housing costs might influence the support of council members that currently are undecided on mandatory water metering.



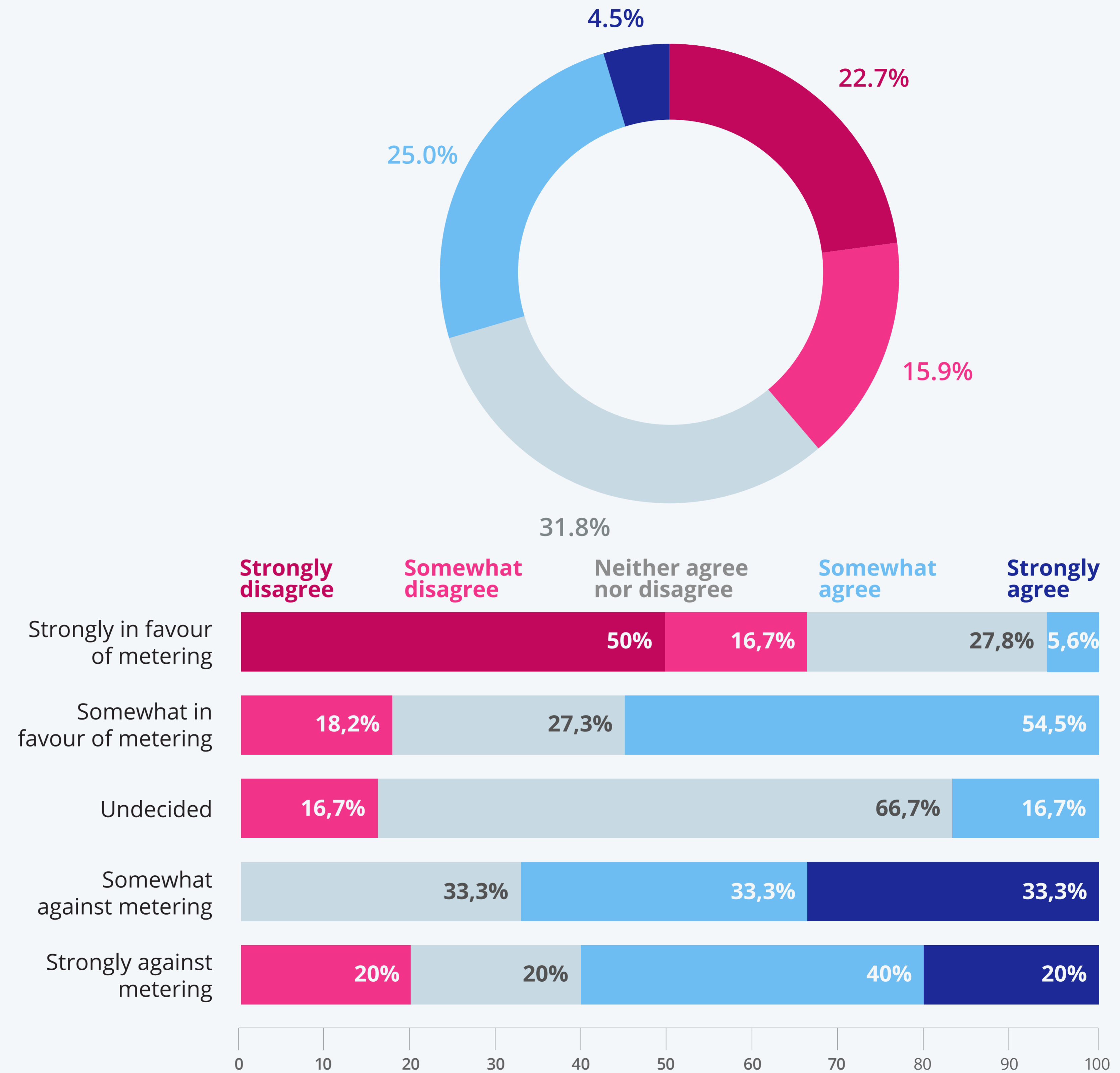
8. Water metering is an efficient tool for water conservation and sustainability.

Statement 8 expresses one of the most common arguments in favor of water metering: water conservation and sustainability. 81.4% of participants agree that metering is an efficient tool for water conservation and sustainability, while only 9.3% disagree. Significantly, 60% of those that are strongly against mandatory water metering disagree with this statement. In all other groups, including those that are somewhat against mandatory water metering, there is substantial support to the idea that water metering is an efficient tool for water conservation and sustainability. The argument for water conservation and sustainability seems to have broad appeal, similar to the broad appeal of the data being generated by water meters we observed in statement 5. We conclude that arguments on sustainability might be effective for mobilizing support for water metering between all groups, including potentially, those who are currently against mandatory metering.



9. Water metering is burdensome for the City to manage due to billing and measurement issues.

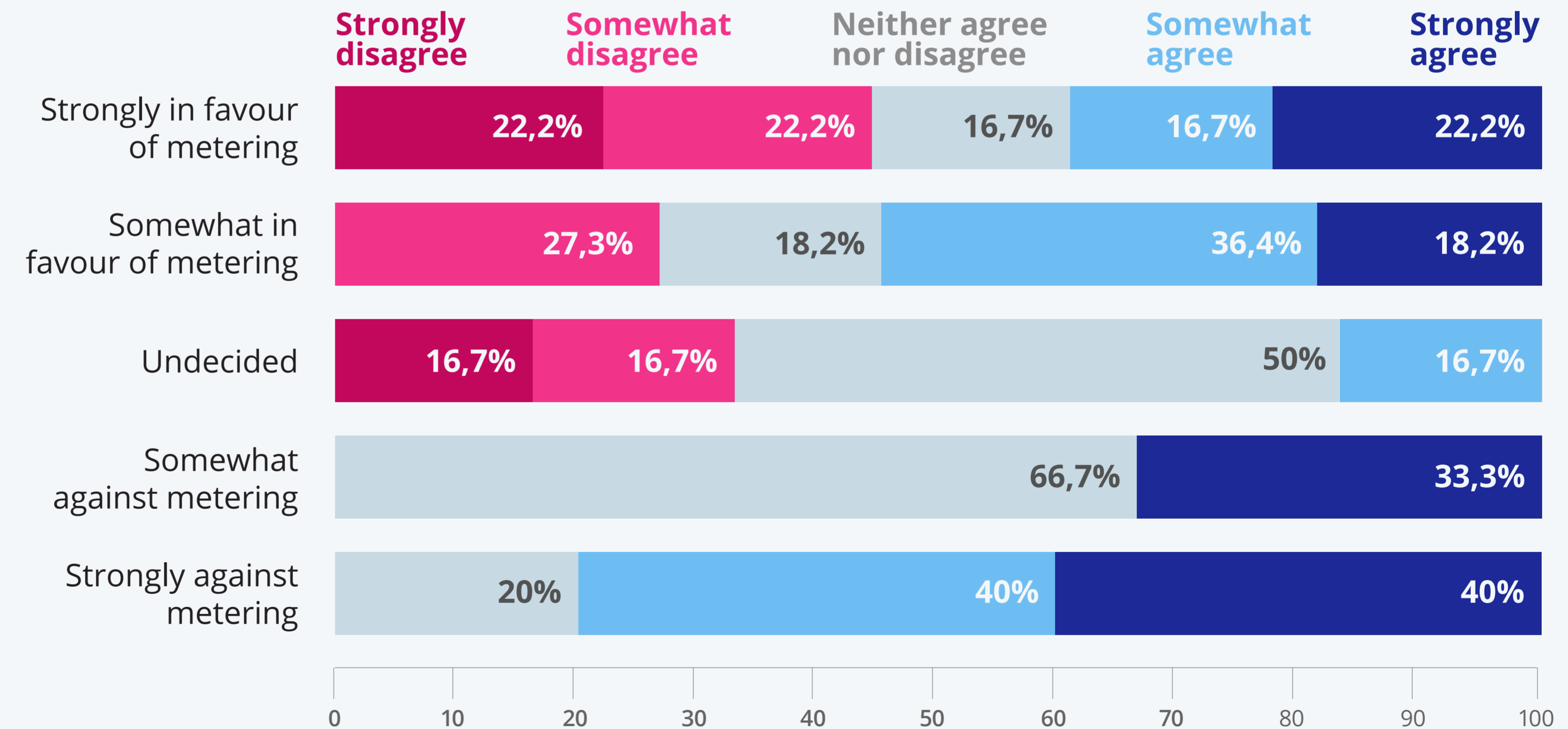
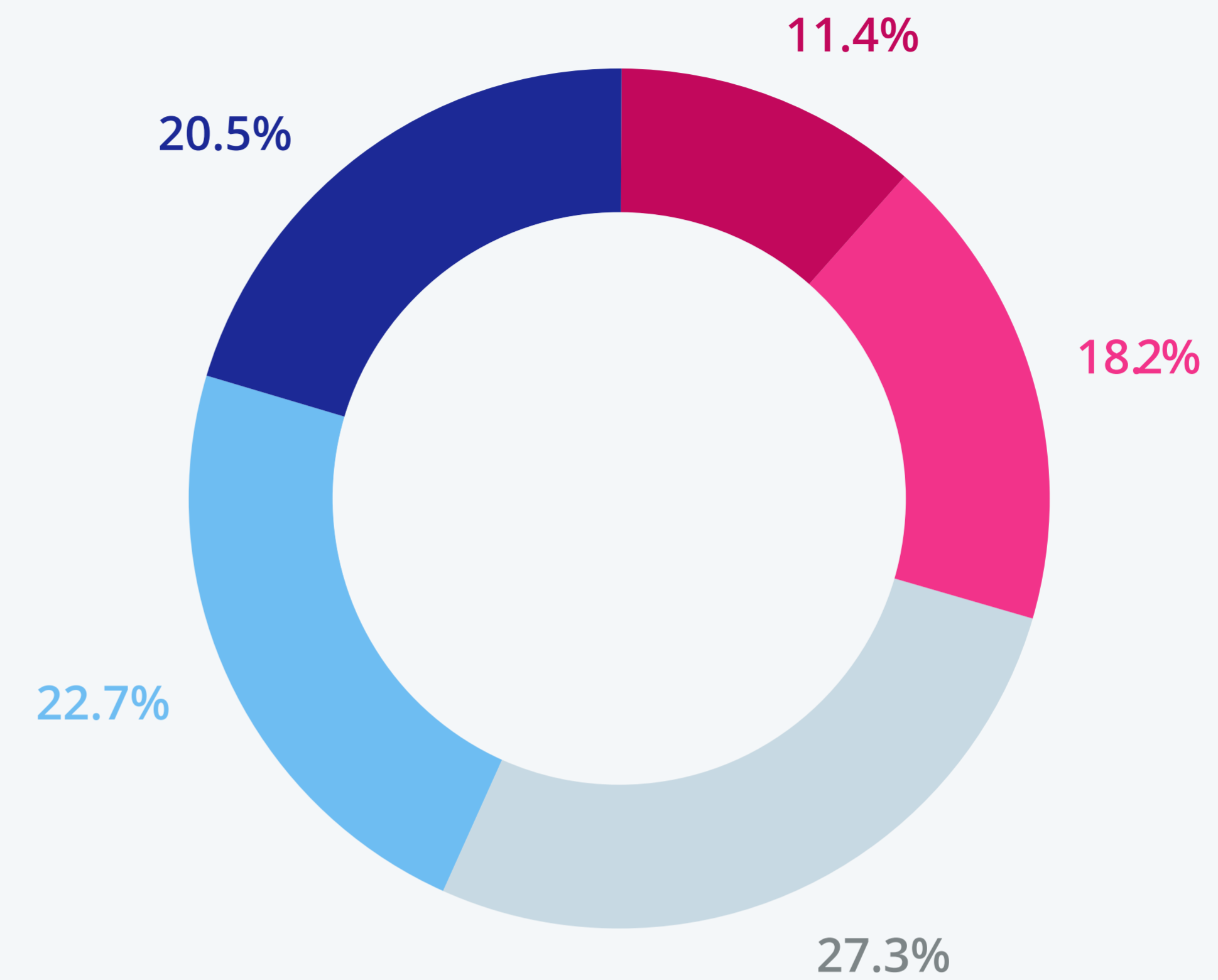
Elected council members are uncertain about the extent to which water metering might impose a burden on the city due to billing and measurement issues. We find responses similar to what we observed on the statement regarding housing costs, with a notable 31.8% that neither agree nor disagree. Only those that are strongly in favour of mandatory water metering strongly disagreed with this statement. Amongst all other groups, we observe a tendency to neither agree nor disagree or somewhat agree. Council members seem to be potentially receptive to what evidence is presented, particularly those who are not strongly in favour or strongly against mandatory water metering.



10. Water metering sends the signal that water is a consumer good rather than a human right.

Finally, statement 10 introduced the issue of water as a commodity versus water as a human right. 43.2% of respondents agreed that water metering sends the signal that water is a consumer good rather than a human right, whereas 29.6% disagreed and 27.3% neither agreed nor disagreed with this statement. Of note, council members that are in favour of mandatory water metering present a fairly even distribution of responses in statement 10, while council members that are against mandatory water metering tended to agree with this statement.

Placed in context with statements 5, 6 and 8, policy makers should be aware that policies perceived as environmentally efficient can create opposition if concerns supported in social justice values are not addressed. Responses to statement 10 reveal a cleavage on this issue could develop in Metro Vancouver. Even council members in favour of water metering showed concern about sending signals that water was a consumer good rather than a human right. In this sense, opposition to mandatory water metering could increase amongst council members if mandatory water metering policies are not complemented with policy tools that guaranty access to water as a human right for all. Ultimately, it will be the values and specific characteristic that inform this public policy that will determine the levels of support or opposition that water metering draws on council members and the general public.



Confidence Intervals for Proportion Agree

We received 45 survey responses from the 131 surveys sent, producing a response rate of 34.3%. Even though we obtained a high response rate, one is left to wonder if the responses are representative of the remaining elected officials who did not respond to the survey. First, we note that the survey response rate is similar for comparable surveys (Birrel, 1983; Local Government Association, 2017). Second, we are able to quantify the uncertainty associated with each agree/disagree statement. Using the observed variability in each response, we calculate 95% confidence intervals for samples from small populations (Table 2). These confidence intervals must be calculated slightly differently than when sampling a very small proportion from a large population. We observe that our confidence intervals range from 5 to 12% and they allow us to conclude that we are 95% certain that the true proportion of elected council members who agree with the statement falls within the range of values in Table 2.

	Statement	Proportion Agree	C.I.	Min.	Max.
1	I support mandatory water metering in my city	68%	12%	56%	79%
2	Water conservation is a priority for residents in my city	80%	10%	70%	90%
3	I would support an initiative that would explore the benefits of water metering in my city	73%	12%	61%	85%
4	We do not need water metering because we have lots of water	5%	5%	1%	10%
5	Measuring household water consumption in my city would generate valuable data to improve city management	80%	10%	70%	89%
6	Water metering allows for fair rate structures where users pay for what they consume	81%	10%	72%	91%
7	A mandatory water metering policy would contribute to an increase in housing costs	35%	12%	23%	47%
8	Water metering is an efficient tool for water conservation and sustainability	81%	10%	72%	91%
9	Water metering is burdensome for the city to manage due to billing and measurement issues	30%	11%	18%	41%
10	Water metering sends the signal that water is a consumer good rather than a human right	43%	12%	31%	55%

Table 2. Confidence intervals for proportion agree statements of elected municipal councillors and mayors in Metro Vancouver on water metering and management.

Conclusion

We find a favourable political environment for taking stronger action on water metering policies in Metro Vancouver. Our survey indicates that most elected council members and mayors are in favour of mandatory water metering, while only a minority are against the idea. Support for metering is especially high in cities that already have mandatory or semi-mandatory policies. In municipalities where there is currently no metering policy in place, we still find that there are council members who are in favour of the idea and might be champions for this policy.

An even larger percent of elected council members are in favour of learning more about the possible benefits of water metering. Among those that are undecided about mandatory water metering, over 80% are in favour of exploring the idea further.

The survey also reveals which arguments are most compelling for elected officials. Arguments about sustainable resource use and the value of the data collected seem to have broad appeal and may be the most effective in mobilizing support for a mandatory water metering policy. In contrast, arguments about fair rate structures or pay for service approaches might not mobilize support beyond council members that are already in favour of mandatory water metering.

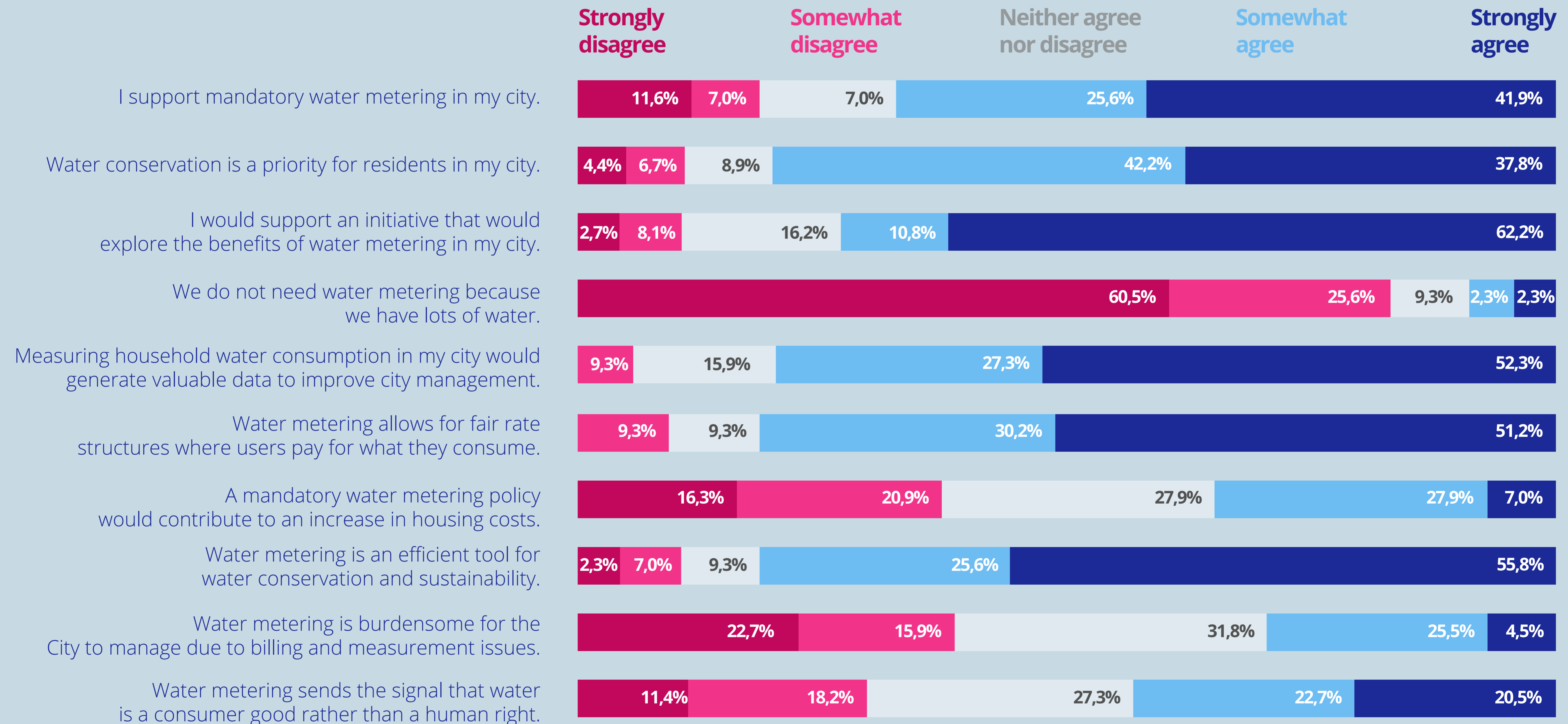
Arguments about the possible impacts on housing costs or the manage-

ment burden of metering could become a barrier to rolling out a metering policy, given the high percentage of undecided respondents. More research on these impacts could be pivotal in influencing the debate.

The results also highlight the obstacles that proponents of mandatory water metering could face in jurisdictions where no policy is currently in place, especially if concerns regarding the costs of metering and water as a human right are not addressed. Any major change to water management will also need to be complemented with considerations about data management and privacy, efficiency, sustainability and equality.

This report aims to contribute to the discussion about water metering policies in Metro Vancouver with new insights about the position of elected council members on this issue. At the regional scale, those in favour of metering are in the majority. Nevertheless, each jurisdiction must have their internal debate about the benefits of metering and what the appropriate strategy might be. Current elected officials seem to be open to learning more about the potential benefits of stronger metering policies and receptive to technical reports or studies that might guide councils in the reform of their existing policy.

Survey summary



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