POWER CONTENT LABEL CONCEPT SURVEY

PENINSULA CLEAN ENERGY

February 2020

HINER & PARTNERS, INC.
MARKETING DIAGNOSTICS AND STRATEGIES

OBJECTIVE

- Gauge customer reactions to the addition of nuclear power to the mix of energy sources in PCE's ECOplus plan
  - The change would increase nuclear from 0% to 18% and reduce large hydro from 45% to 27%.

METHODOLOGY

- Random sample of 17,500 Peninsula Clean Energy residential customers
- Survey completions: 350
- Data collection between Feb 10 and Feb 19, 2020
- Self-administered web-survey hosted by HINER & Partners, Inc.
- All were conducted in English.

PREFERED ENERGY SOURCE – Survey Format

Below are two sample mixes of electricity sources. One has more large hydroelectric power and the other includes nuclear power. If you had a choice between Options Q and R -- with no difference in cost -- which would you prefer, or do you not have a preference?

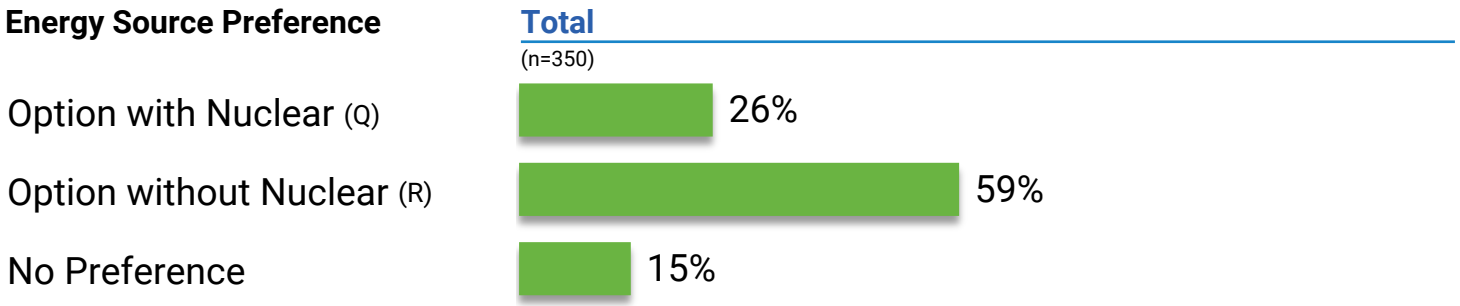
	Option Q	Option R
Eligible Renewable	**50%**	**50%**
Biomass & Biowaste	12%	12%
Geothermal	2%	2%
Eligible Hydroelectric	4%	4%
Solar	20%	20%
Wind	12%	12%
Coal	**0%**	**0%**
Large Hydroelectric	**27%**	**45%**
Natural Gas	**0%**	**0%**
Nuclear	**18%**	**0%**
Other	**0%**	**0%**
Unspecified Sources of Power	**5%**	**5%**
TOTAL	**100%**	**100%**

Customers were shown two options and asked to select their preferred mix of electricity sources. The presentation highlighted the difference.

This is the actual presentation.

PREFERED POWER SOURCE MIX

A clear majority (59%) prefer the PCL without nuclear, but about 2/5's (41%) prefer to include nuclear* OR are indifferent.



* Based on their open-ended comment, 14 of the respondents who opted for the Nuclear option meant to select the no nuclear option. After removing these, 22% (vs 26%) opted for the PCL with nuclear.

The intensity of these preferences was gauged with three additional questions:

- Why do you prefer the option you selected? (open-end)
- If you learned that the mix of energy sources supplied to your household had changed to include 18% nuclear, an increase from 0% nuclear, what would you do? (closed-end with other specify)
- Would adding nuclear power to the energy mix change your perception of the energy supplier? If so, how?

Q4 - Below are two sample mixes of electricity sources. One has more large hydroelectric power and the other includes nuclear power. If you had a choice between Options Q and R -- with no difference in cost -- which would you prefer, or do you not have a preference?

REASONS FOR PREFERRED PCL

About half (47%) of those who prefer nuclear did so because it is cleaner, cheaper, more reliable, etc. and 16% did so because of the problems with large hydro (impact on waterways, etc.)

Why did you prefer this option?	Preferred Energy Source Option: Nuclear Included (n=91) a
Nuclear is good / No carbon emissions	47%
Nuclear waste disposal is a problem	7%
I would prefer no Nuclear	4%
Possible danger from Nuclear	7%
Large Hydro damages the ecosystem	16%
It is cleaner / Less waste	3%
The more sources the better	5%
More Hydroelectric is better	-
A safer option	3%
Hydroelectric is dependent on rain/snow	4%
Other	11%
Don't Know	5%

Q5 - Please explain why you prefer Option Q/R/No Preference (OPEN-ENDED RESPONSE)
Coded responses are reported here. Verbatims are also available.

*Letters indicate a significant difference (horizontally, between cells with different PCL preferences) at the 90% confidence level.

REASONS FOR PREFERRED PCL

About half (47%) of those who prefer nuclear did so because it is cleaner, cheaper, more reliable, etc. and 16% did so because of the problems with large hydro (impact on waterways, etc.)

Opponents most often cited risks of nuclear (waste disposal, risk of meltdown, etc.)

Why did you prefer this option?	Preferred Energy Source Option: Nuclear Included (n=91) a	Preferred Energy Source Option: Nuclear Free (n=208) b
Nuclear is good / No carbon emissions	47%	1%
Nuclear waste disposal is a problem	7%	30%
I would prefer no Nuclear	4%	35%
Possible danger from Nuclear	7%	23%
Large Hydro damages the ecosystem	16%	2%
It is cleaner / Less waste	3%	10%
The more sources the better	5%	-
More Hydroelectric is better	-	4%
A safer option	3%	3%
Hydroelectric is dependent on rain/snow	4%	1%
Other	11%	5%
Don't Know	5%	3%

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No Preference customers say risks of each (large hydro vs nuclear) are equivalent.

Why did you prefer this option?	Preferred Energy Source Option		
	Nuclear Included	Nuclear Free	No Preference
	(n=91) a	(n=208) b	(n=51) c
Nuclear is good / No carbon emissions	47%	1%	8%
Nuclear waste disposal is a problem	7%	30%	10%
I would prefer no Nuclear	4%	35%	-
Possible danger from Nuclear	7%	23%	-
Large Hydro damages the ecosystem	16%	2%	8%
It is cleaner / Less waste	3%	10%	-
The more sources the better	5%	-	4%
More Hydroelectric is better	-	4%	4%
A safer option	3%	3%	-
Hydroelectric is dependent on rain/snow	4%	1%	-
Other	11%	5%	18%
Don't Know	5%	3%	61%

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Coded responses are reported here. Verbatims are also available.

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RESPONSE TO NUCLEAR ADDITION

A substantial share of customers, reportedly, would act in impactful ways.

- Combining supporters, opponents and neutrals, 16% of all customers claim they would shop for another source and 12% claim they would contact an elected. The shift would be a topic of conversation with more than one in four.
- Among the 59% who opted for no nuclear, most would simply shop for other options (perhaps switching to ECO100).

Response Action	Total (n=350)	Preferred Energy Source Option: Nuclear Included (n=91) a	Nuclear Free (n=208) b	No Preference (n=51) c
Nothing	39%	63% b	24%	59% b
Shop for an option that does not use nuclear	32%	11%	47% ac	10%
Shop for an option that only uses renewables	28%	16%	37% ac	14%
Discuss the change with family and friends	28%	15%	35% ac	22%
Shop for another company from which to buy electricity	16%	5%	23% ac	8%
Shop for an option that uses less nuclear	13%	7%	17% ac	6%
Contact the electricity supplier	13%	10% c	18% ac	2%
Comment on the change via social media	13%	4%	19% ac	4%
Contact an elected official	12%	5%	16% ac	6%
Take some other action	7%	7%	8% c	2%

Q6 - If you learned that the mix of energy sources supplied to your household had changed to include 18% nuclear, an increase from 0% nuclear, what would you do? CLOSED ENDED

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PERCEPTION OF PCE WITH NUCLEAR

Such a change would prompt opinion/reputation changes among 42% - mostly negatively.

- Some of the "yes, my opinion would change" are used to say their opinions toward the supplier would be improved. Most, though, mean their opinion would be lowered.

Change in Perception	Total (n=350)	Preferred Energy Source Option
NET: YES	**42%**	
Yes	29%	
Too much waste	7%	
Unsafe	7%	
I don't like Nuclear Energy	3%	
Prefer Solar/Wind/Hydro	3%	
NET: NO	**41%**	
No/Not Really	34%	
I like Nuclear/Less environmental impact	5%	
It would be a positive move/Smart	4%	
Better to have a lot of sources	1%	
I need more information	**7%**	
Other	**1%**	
Don't Know	**4%**	
No Comment	**6%**	

Q8 - Would adding nuclear power to the energy mix change your perception of the energy supplier? If so, how?

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Change in Perception	Total (n=350)	Preferred Energy Source Option: Nuclear Included (n=91) a	Nuclear Free (n=208) b	No Preference (n=51) c
NET: YES	**42%**	**21%**	**56% ac**	**24%**
Yes	29%	19%	38% ac	12%
Too much waste	7%	-	10% a	6% a
Unsafe	7%	1%	10% a	8% a
I don't like Nuclear Energy	3%	1%	4% a	2%
Prefer Solar/Wind/Hydro	3%	1%	5% ac	-
NET: NO	**41%**	**68% b**	**25%**	**59% b**
No/Not Really	34%	49% b	22%	53% b
I like Nuclear/Less environmental impact	5%	9% b	3%	8%
It would be a positive move/Smart	4%	11% bc	1%	2%
Better to have a lot of sources	1%	2%	-	-
I need more information	**7%**	**4%**	**9%**	**6%**
Other	**1%**	**2%**	**1% c**	-
Don't Know	**4%**	**2%**	**3%**	**8%**
No Comment	**6%**	**3%**	**8% a**	**6%**

Q8 - Would adding nuclear power to the energy mix change your perception of the energy supplier? If so, how?

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REASONS FOR PREFERRED PCL – Prefer No Nuclear

Very few had strident explanations for opposing nuclear.

I oppose ALL forms of nuclear power generation, save for spacecraft propulsion.

Nuclear anything is just really risky unless we have a really good way of making sure people aren't affected by the radiation.

Nuclear power is not safe. Examples of Russia, Japan, France and USA have shown that. Germany is phasing out atomic power plants.

I prefer no nuclear. It may be greenhouse gas free, but it is has dangerous risks when accidents occur and produces very toxic waste products.

No nuclear- despite our best efforts, nuclear systems still rely on many engineered systems to prevent accidents and presents opportunities for failure.

Large Hydro electric is greenhouse gas free and also environmentally friendly with no nuclear waste

Large hydroelectric is as renewable as the rain

I know that nuclear power creates fewer pollutants than coal and gas, so I'd still consider it clean energy. I think I'd be okay with it below 10%. But if it's inching up in percentage, I would question if the energy supplier was truly committed to providing green energy or if it was trying to green-wash its operation.

Although nuclear doesn't put out green house gases, we do not have a way to store the waste, so that continues to be a problem for increasing nuclear energy.

I think large hydro has a role to play in demand management and is comparatively clean. I also am torn as generally I support nuclear as a bridge for nighttime energy source until battery storage is mature. For example, if nuclear plant already exists (Devils Canyon) we should use it in the mix.

When considering the trade-offs between nuclear and large hydroelectric, I prefer large hydroelectric because IMO the impact of a catastrophic failure of a nuclear power plant + the nuclear waste + the greenhouse gas emissions from nuclear power plants are less attractive when compared to the impact of interruptions of natural water flow from large hydroelectric power plants.

REASON FOR PREFERRED PCL – Prefer to Add Nuclear

Most who prefer to add nuclear believe large hydro is worse.

The chances of a water disaster effecting the lives of people and environment vs a nuclear disaster is minimal.

The environmental impact of large hydropower is greater than that of nuclear.

This mix of energy sources is more diverse. If there is a drought, we are less impacted with a more diverse set of energy sources.

Nuclear energy is the only attractive non-fossil-fuel energy source because it can actually compete—without subsidies or other market-distorting practices—with the plentiful, reliable, and cheap energy we get from fossil fuels today.

Nuclear is an important part of a carbon-free energy mix, particularly for base load.

Kudos for bucking mostly unwarranted fear of nuclear power

Nuclear power is stable, not subject to drought conditions which are becoming more common in CA.

Hydro power can be disruptive to ecosystems and nuclear has little side effects if handled correctly

I believe in supporting Nuclear Power as the best long term alternative to more pollutant sources of energy.

I believe Nuclear power is a good source and should be included in a well balanced plan for power. I believe we should use all sources and not rely on just a few, renewable or not.

I believe that the only path to cutting carbon emissions involves needing to have some nuclear energy

I like nuclear because it is cleaner than coal and natural gas. Nuclear got a bad rep from 3-mile island but much has improved since then. Large Hydroelectric means building a dam. However, with Nuclear, Nevada is going to have to give us Yucca mountain. Sorry Nevada. There's no better place than an amazing hole under Yucca mountain.