Citizens' views on the future of renewable energy

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Data

- Online panel
- Age: 17-75 years
- N = 1012
- Representative in terms of age and gender
- Autumn 2017

Items and measurements

- Images about the energy forms in Finland in 2030:
  - in which direction the production of 14 different energy forms ought to be developed in Finland up to the year 2030
  - 5-point scale (reduce significantly - increase significantly)
- Images of the energy system in Finland in 2030:
  - how the energy system in Finland will change, 35 aspects
  - 5-point scale (reduce significantly - increase significantly)
- Drivers of the reduction of the environmental and climate impacts of energy production in Finland
  - 34 drivers
  - 5-point scale (unimportant – extremely important)

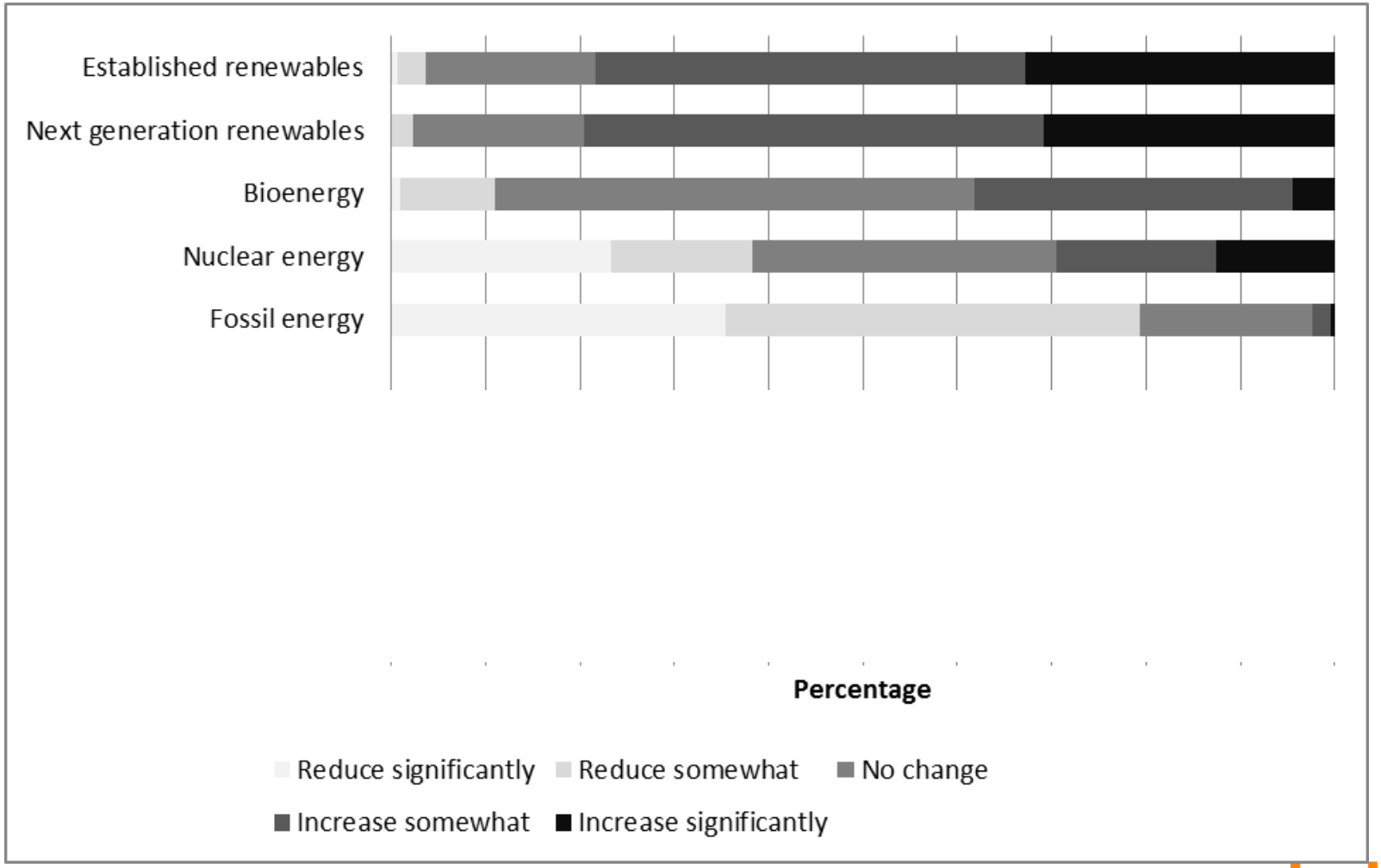
Analysis

- Analysed with exploratory factor analysis (EFA) using Maximum Likelihood and Varimax rotation for each set separately.
  - EFA groups the items into clusters based on shared variance.
- Using multi-level perspective (MLP) in analysis: changes in landscape, regime and niche

Results 1/3: Energy forms

	Next generation renewables	Fossil energy	Bioenergy	Established renewable vs. nuclear energy
Wave energy	**.70**	-.10	.11	.21
A technology that is not yet in use	**.70**	-.18	.01	.03
Ground source heat and other geothermal	**.61**	-.18	.22	.02
Coal	-.25	**.91**	.00	.03
Oil	-.22	**.64**	.16	-.20
Wood	.03	.07	**.58**	-.05
Biogas	.26	-.07	**.53**	.04
Arable energy plants	.34	-.02	**.52**	.19
Peat	-.20	**.41**	**.48**	.02
Natural gas	.04	.24	.32	-.10
Wind power	.21	-.09	-.05	**.71**
Nuclear power	-.01	.08	.10	**-.55**
Solar power	.35	-.24	.08	**.48**
Hydropower	-.04	.12	.20	.33

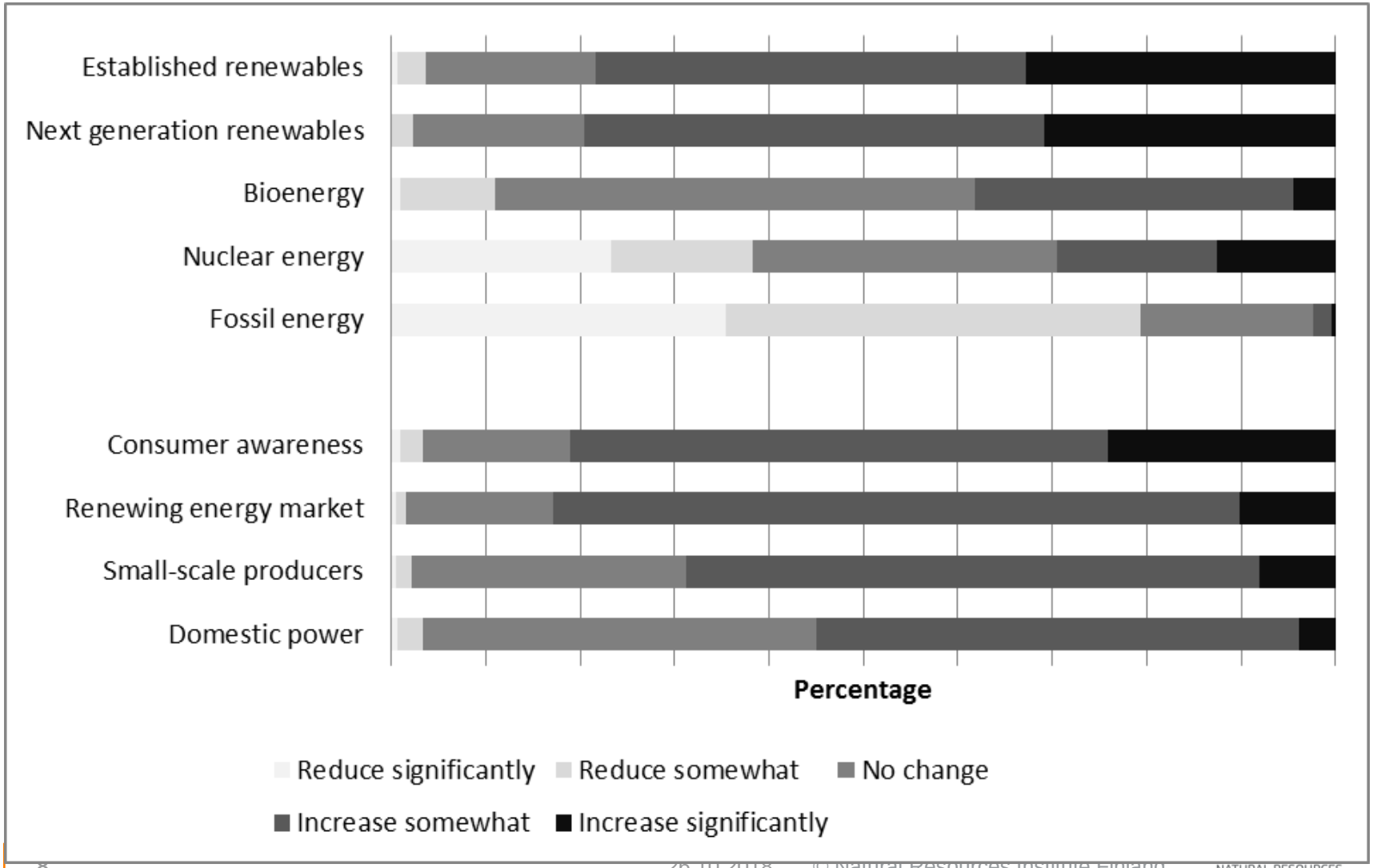
Images about the energy forms in Finland in 2030



Results 2/3: Energy sector changes

- 1 Renewing energy market: A new type of energy market, where renewable energy is increasing, new energy producers / prosumers have emerged alongside new business models, with smart technologies enabling it all. An energy regime transition.
- 2 Domestic power: Local energy companies, citizens and the state all have a significant role. International actors, on the other hand, are not present. Climate change affects energy policy decisions. Policy regime emphasised.
- 3 Small scale producers: Self-reliance is increased, new innovations are taken to use and prosumers share their energy to the grid, allowing households to buy from them. Represents a growing niche: the image is still not mainstream but rather characterised by individual prosumers' activity.
- 4 Consumer awareness: The consumers are more aware of energy production alternatives and their environmental impacts. The regime and the markets have not changed. The awareness does not find an outlet, or is demonstrated in the purchase of "green" electricity from conventional energy producers.

Images of the energy system in Finland in 2030



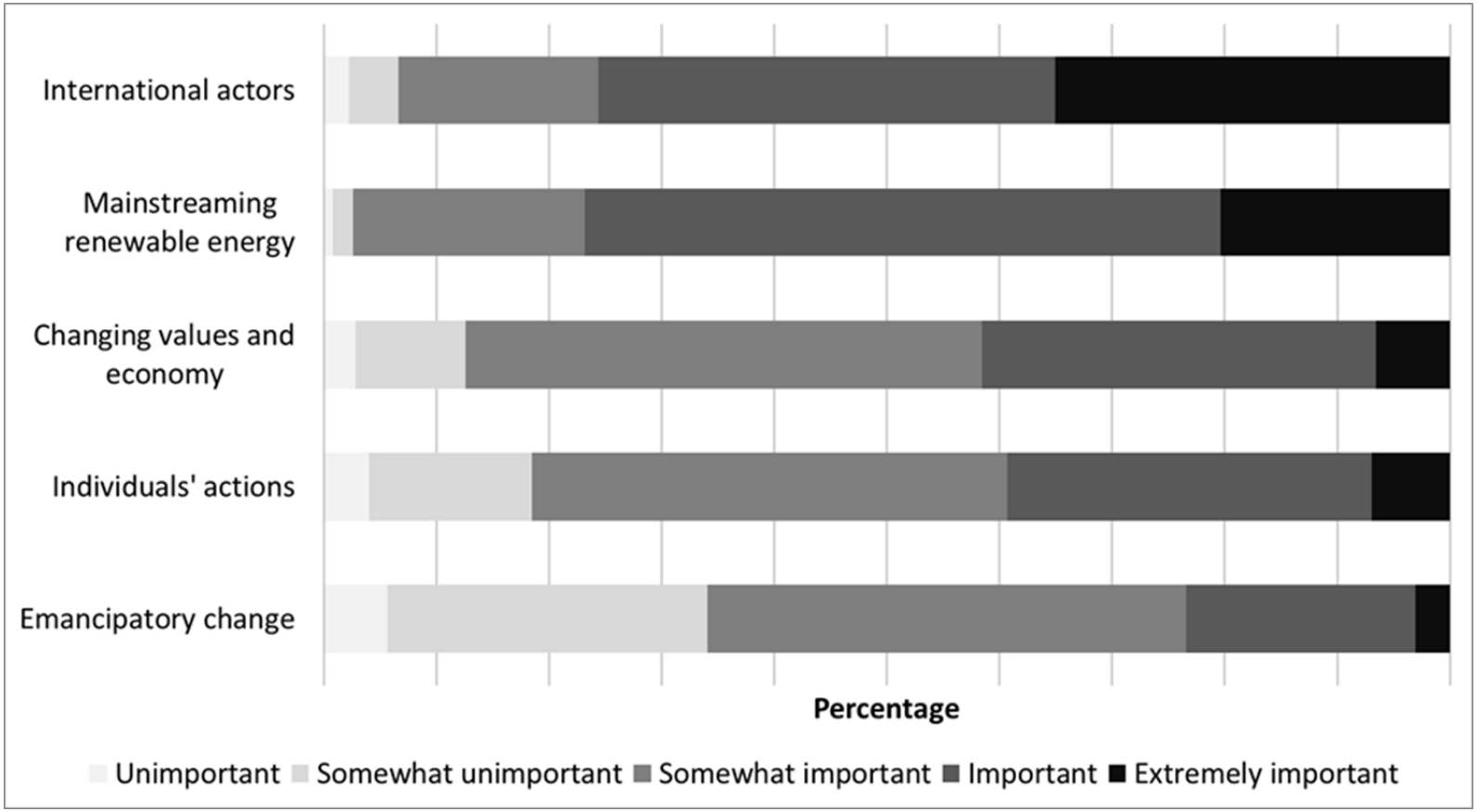
Results 3/3: Drivers of transition to low environmental impacts

- 1 Mainstreaming renewable energy: More drivers were loaded to this factor than any of the others. Various obstacles are removed: RE becomes more affordable, information gaps are removed, funding is available and companies take action. Existing actors suffice, the energy regime participates in the transition (policy making, finance sector, research, business sector, construction sector, education). No radical changes, rather the gradual removal of market barriers. Power resides mainly in the market: if renewable energy is affordable and feasible, it will be taken to use.
- 2 International actors: Other states, environmental agreements and international corporations. This vision reflects the assumption that large-scale actors determine also the national energy sector. They are likely to affect markets, and possibly encourage Finnish policy makers and energy producers towards environmental sustainability. Both policy and markets seem to change in the landscape level.

Results 3/3: Drivers of transition to low environmental impacts

- 1 Mainstreaming renewable energy
- 2 International actors
- 3 Individual actions: Individual action and public acknowledgement of prosumerism. Responsibly behaving individuals take action and the small scale production of energy becomes well-known and perhaps a form of self-expression. Institutions do not dramatically change, instead the ordinary people gradually embrace new behaviour.
- 4 Changing values and economy: Large-scale, systemic changes such as degrowth. This signifies a much broader change than that of the energy sector regime: the entire economic landscape is changing.
- 5 Emancipatory change: A change in citizenship. A “citizen” rather than a “consumer” drives the change. Citizens are seen as more enlightened or environmentally friendly than the existing regimes. People are seen as a collective rather than individuals. The present political system is challenged: a change is required for environmental reformation.

Drivers of the reduction of the environmental and climate impacts of energy production in Finland



Conclusions: Majority supports sustainable energy transition

- Energy forms:
  - Favouring renewable energy
  - Ambiguity regarding bioenergy
- Energy system:
  - All dimensions were perceived as aligned (correlated)
  - Greatest increase expected in consumer awareness and renewing energy market
- Drivers of transition:
  - International actors and mainstreaming renewable energy were perceived as most important
  - Also market and citizens/consumers were perceived important
  - Strong positive correlation between all drivers

Conclusions: Majority supports sustainable energy transition

- Citizens – not only early adopters – may show an even greater readiness for transition than the current political, economic and technological systems do
- Citizens' future-oriented values and attitudes have an important role in driving transition
  - but only when citizens have the possibility to actively engage in transition

References

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Thank you!

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