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MAPPING THE MINDSETS OF DUTCH MUNICIPAL POLICY WORKERS ON MITIGATING ENERGY POVERTY IN THE GENDER-JUST ENERGY TRANSITION: *AN EXPLORATORY Q STUDY*

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Mindsets van gemeentelijke ambtenaren over de aanpak van energiearmoede

Samenvatting & aanbevelingen

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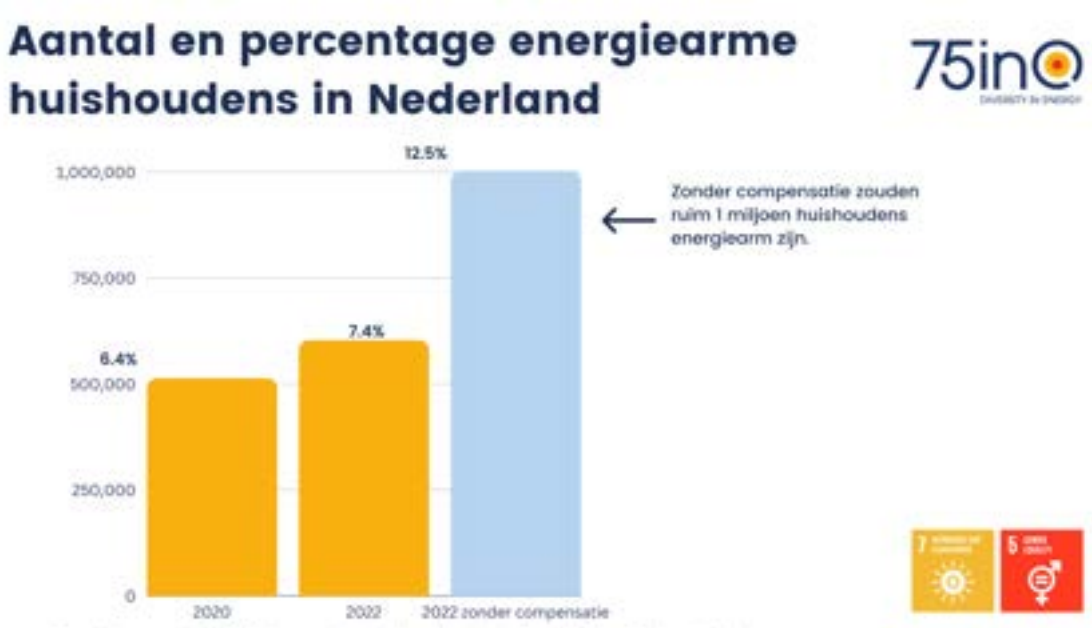
Context

Najaar 2022, telde Nederland ongeveer 550.000 energiearme huishoudens volgens de TNO onderzoekers (1). Van dit aantal is naar schatting 140.000 onzichtbaar: huishoudens die nog wel hun energierekening betalen, maar hun energieconsumptiegedrag zo hebben moeten aanpassen dat hun leef comfort erdoor wordt aangetast. Energiearmoede is een buzzwoord dat door de coronacrisis (2) en de oorlog in Oekraïne ontzettend veel aandacht heeft gekregen in Nederland van de politiek en de samenleving (3). Enerzijds zaten mensen meer thuis door de pandemie waardoor het energiegebruik van huishoudens steeg. Anderzijds stegen de energieprijzen vanwege de druk op de Russische gaslevering. Echter, vóór deze gebeurtenissen was energiearmoede al een groeiend probleem voor veel huishoudens in Nederland.

De korting op energierekeningen in november en december 2023, de energietoeslag en het prijsplafond hebben ervoor gezorgd dat het aantal energiearme huishoudens niet verdubbeld is. Deze drie nationale noodoplossingen, aangewakkerd door de groeiende politieke aandacht voor energiearmoede, hebben brandjes geblust (4), maar Nederland telt volgens TNO (Figuur 1) nog steeds 602.000 energiearme huishoudens (5). Deze huishoudens worden zeker geholpen door bovengenoemd beleid, maar hebben extra hulp nodig om toekomstbestendig én structureel uit energiearmoede te kunnen stappen.



Figuur 1. Kreuger, H. (2023) Gebaseerd op Volkskrant (Van de Weijer, 2023) grafiek met TNO data.

Connectie met de energietransitie

Energiearmoede is niet een op zichzelf staande uitdaging: Nederland staat voor een nog grotere opdracht, namelijk de energietransitie. Mensen die moeite hebben om de energierekening te betalen, kunnen minder participeren in de energietransitie. Er ontstaat een duurzaamheidskloof waarbij degenen die kunnen investeren in de energietransitie profiteren van lagere energiekosten, terwijl zij die dat niet kunnen geconfronteerd worden met hoge energielasten en amper mogelijkheden om hun energieconsumptiegedrag aan te passen. De financiële en sociale achterstand die deze groep in de samenleving heeft zal worden vergroot naarmate de transitie vordert.

Gender

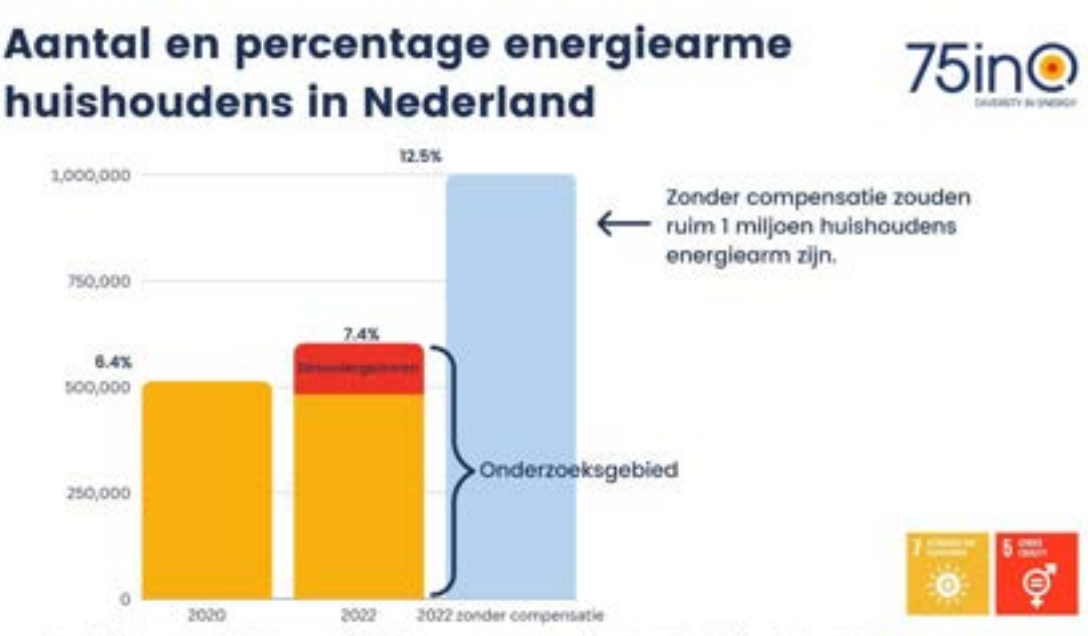
Een manier om deze sociaal-maatschappelijke complexiteit te analyseren is met een gender-bril. Dat wil zeggen, als je dieper kijkt naar de eigenschappen van energiearme huishoudens in Nederland, dan zie je bijvoorbeeld dat 1 op de 5 huishoudens éénoudergezinnen zijn (6). Deze zijn overwegend gezinnen met een alleenstaande moeder met een zorgtaak voor afhankelijke familieleden (7). Op financieel vlak worden vrouwen eerder geraakt door (energie)armoede vanwege de aanhoudende loonkloof tussen mannen en vrouwen (8). Verder zijn er ook fysiologische aspecten. Vrouwen hebben, bijvoorbeeld, sneller last van kou of hitte door een andere lichaamstemperatuurregulatie dan mannen (9). Daarnaast worden veel vrouwen ouder dan mannen, waardoor veel weduwen alleen achterblijven met de rekeningen en een lager inkomen dan hun mannen(10). Dat wil niet zeggen dat energiearmoede exclusief een vrouwenprobleem is, deze manier van complexiteit bestuderen kan ook vanuit andere perspectieven zoals bijvoorbeeld etnische achtergrond. Het toont wél aan dat energiearmoede als sociaal-economisch probleem structurele ongelijkheid in de samenleving versterkt en vergroot. De drie nationale noodoplossingen reflecteren dit echter niet: de energierekening korting was voor iedereen, de energietoeslag wordt berekend op basis van inkomen en het prijsplafond op (groot)verbruik van huishoudens.

Beleidsdecentralisatie en multilevel governance

Nederland kent een hoge mate van beleidsdecentralisatie en 'multilevel governance': de verdeling van beleidsimplementatie van nationale overheden naar gemeenten. Met specifieke uitkeringen (SPUK) zijn de Nederlandse gemeenten nu aan zet voor de verdere aanpak van energiearmoede (11). Deze SPUK gelden bieden beleidsvrijheid aan gemeenten en daardoor de mogelijkheid om lokale, op maat gemaakte oplossingen uit te werken die energiearmoede aanpakken bij de oorzaak en het mogelijk maken voor grotere groepen huishoudens om mee te doen aan de energietransitie. Het risico van de SPUK gelden is ruimtelijke onrechtvaardigheden vanwege de vrijheid van gemeenten om eigen interventies te ontwikkelen: per gemeente kunnen huishoudens andere ondersteuning krijgen. Huishoudens in de ene gemeente krijgen bijvoorbeeld een verhoogde energietoeslag en huishoudens in de buurgemeente alleen led-lampjes of tochtstrippen.

Onderzoek

De resterende 602.000 huishoudens die in energiearmoede leven, kennen dus een veel complexere identiteit dan het beleid momenteel reflecteert (Figuur 2). Met literatuuronderzoek zet mijn onderzoek de sociaal-maatschappelijke complexiteit verder uiteen, zoals het feit dat een vijfde van de energiearme huishoudens éénoudergezinnen zijn met voornamelijk vrouwen aan het hoofd. Het vat bovendien samen welke lokale beleidsinitiatieven er al zijn om energiearmoede aan te pakken.



Figuur 2. 'Onderzoeksgebied' Kreuger, H. (2023) Gebaseerd op Volkskrant (Van de Weijer, 2023) grafiek met TNO data.

Met de beleidsvrijheid die de SPUK gelden gemeenten bieden in ons achterhoofd is het vervolgens belangrijk om de gemeentelijke beleidsmedewerkers te bevragen: hoe zien zij energiearmoede eigenlijk en welke beleidskeuzes maken zij? Dit heeft namelijk invloed op de aard van de gemeentelijke interventies om energiearmoede te bestrijden.

De hoofdonderzoeksvraag is daarom: Wat zijn de meest voorkomende mindsets van Nederlandse gemeentelijke beleidsmedewerkers over de aanpak van energiearmoede om een gender-rechtvaardige energietransitie te implementeren?

Mindsets

Om de hoofdonderzoeksvraag te beantwoorden, gebruikte ik de Q methode in combinatie met interviews van respondenten. Respondenten clusteren sets van stellingen rond een onderwerp. De Q methode kan subjectiviteit en daardoor groepen gelijkgestemden ontdekken in een dataset. Wat de methode uniek maakt is dat stellingen niet per stuk op bijvoorbeeld een Likert schaal worden beoordeeld, maar samen op één tabel terecht komen. Uit de enquête waarin beleidsmedewerkers stellingen over de aanpak van energiearmoede op gemeentelijk niveau hebben gesorteerd en (na afloop) interviews hebben gegeven zijn twee type mindsets geïdentificeerd bij gemeentelijke beleidsmedewerkers verantwoordelijk voor energiearmoede beleid: de **institutie-focussers** en de **verkenners**:

- De institutie-focussers hebben de neiging om het eens te zijn met stellingen die minder verantwoordelijkheid voor gemeenten schetsen. De verantwoordelijkheid voor de aanpak van energiearmoede ligt bijvoorbeeld meer bij woningcorporaties en de nationale overheid. Tegelijkertijd leggen de institutie-focussers de nadruk op het overkoepelende doel: de energietransitie.
- De verkenners zetten stellingen over het verder definiëren en onderzoeken van energiearmoede hoger op hun prioriteitenlijst. Verkenners benadrukken het belang van een lokaal perspectief op energiearmoede en zijn het duidelijk oneens met alléén een financiële aanpak .

Beide mindsets zijn positief over energiearmoedebestrijding initiatieven zoals de energiecoaches en energiefixers. Ook zijn ze het eens dat beleidsmedewerkers niet per definitie een directe afspiegeling van de diversiteit (bijvoorbeeld in gender, etniciteit, etc) van bewoners in hun gemeente hoeven te zijn.

Verdere bevindingen

- ✔ Naast de twee mindsets identificeert het onderzoek nog de volgende bevindingen:
- ✔ Beide mindsets staan achter de inzet van energiecoaches en energiefixers. Dit zijn mensen (onbetaald en betaald, respectievelijk) die bewoners kunnen uitleggen hoe je zuinig met je energie omgaat (coach) en energiebesparende oplossingen kunnen installeren (fixers).
- ✔ Beide mindsets letten op koppelkansen . Bij projecten wordt kritisch gekeken naar de verschillende doelen die behaald moeten worden en of er een overlap zit in onderwerpen en aanpakken.
- ✔ Er is een bewustzijn van decentralisatie & multilevel governance. Dat wil zeggen, de groeiende verantwoordelijkheid van de gemeenten en de versnippering van beleid wordt opgemerkt door beleidsmedewerkers. Dit werd voornamelijk genoemd in de interviews en werd zowel positief als negatief ontvangen door de geïnterviewden.
- ✔ Stellingen die expliciet gender en/of etnische achtergrond noemen worden ontvangen met verwarring. In voornamelijk de interviews reageerden beleidsmedewerkers met verwarring op de stelling waar gender en/of etnische achtergrond werd genoemd. Het was niet altijd helder wat dit met energiearmoede te maken heeft. In de resultaten kwamen de stellingen bij beide groepen onderaan de prioriteitenlijst (bij de institutie-focussers lager dan de verkenners).

Aanbevelingen

1. Gemeenten moeten de kennis en capaciteit krijgen om de complexiteit van energiearmoede uit te kunnen zoeken. Dat kan door middel van toegang tot data, workshops, etc. (de tweede aanbeveling borduurt hierop voort)
2. Communicatie en kennisdeling (gefaciliteerd door het rijk of op een andere manier) kan helpen bij het versnellen van de energiearmoede aanpak en voorkomen dat iedere gemeente het wiel zelf moet uitvinden. Eén oplossing voor heel Nederland is ook niet mogelijk, maar gelijksoortige gemeenten (niet per regio, maar bijvoorbeeld op basis van aantal inwoners of soorten woningen) kunnen samenwerken om tijd te besparen.
3. De SPUK gelden kunnen aangescherpt worden met vereisten en meer sturing door het rijk, zodat het voor gemeenten makkelijker is om een roadmap te maken en ruimtelijke onrechtvaardigheden door verschillen tussen gemeenten te verminderen.
4. De aanpak van energiearmoede wordt bij verschillende gemeenten onder verschillende afdelingen geschaard. Een break the silos aanpak (het probleem niet onder sociaal domein, duurzaamheid, e.d.., maar gemeentebreed aanpakken) kan hierbij tot betere resultaten leiden.

Op korte termijn laat het onderzoek zien waar de bottlenecks zitten in de aanpak van energiearmoede; het huidige nationale beleid is ontoereikend voor meer dan een half miljoen huishoudens en de complexe aard van deze huishoudens kan nog onvoldoende worden ingezien door beleidsmedewerkers. Dat wil niet zeggen dat ze de complexiteit niet erkennen. De verkenners (meer dan de institutie-focussers) zien wel degelijk complexiteit, dan wel niet expliciet geschaard op gender. Toch is een combinatie van de tijdsdruk en urgentie van dit probleem met een tekort aan capaciteit de reden dat dit niet rustig en structureel uitgewerkt en geïmplementeerd kan worden.

Op langere termijn tonen de mindsets subjectiviteit bij gemeentelijke ambtenaren en in de beleidscyclus. Dat is geen nieuws, maar het is wel ontzettend interessant dat deze mindsets niet regio-afhankelijk of zelfs organisatie-afhankelijk lijken te zijn. Door heel Nederland en binnen organisaties keken beleidsmedewerkers anders tegen de aanpak van energiearmoede aan.

Tot slot, los van de huidige context van het onderzoek, biedt de Q methode een heldere manier om meningen onder allerlei groepen (bijvoorbeeld ook in de landelijke politiek, bij energieleveranciers of bij alle Nederlanders) over diverse onderwerpen in kaart te brengen. De combinatie met interviews bleek daarin cruciaal om de mindsets te nuanceren.

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MAPPING THE MINDSETS OF DUTCH MUNICIPAL POLICY WORKERS ON MITIGATING ENERGY POVERTY IN THE GENDER-JUST ENERGY TRANSITION: AN EXPLORATORY Q STUDY

Submitted to: Hanze University of Applied Sciences, Groningen, The Netherlands
In partial fulfilment of the requirements for the degree of: Energy for Society
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Organization supervisor: Dr. Mariëlle Feenstra
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Date: 20 January 2023

Abstract

In the Netherlands, 550.000 households live in energy poverty, from which an estimated 140.000 are invisible (i.e. on paper still paying their energy bill). The energy transition aims to offer clean and affordable energy for all. However, necessary citizen contributions to the energy transition seem mostly available for disposable incomes. A gender-just energy transition includes all perspectives. The gender lens exemplifies the complexity of energy poverty; in the Netherlands, women are the most likely to be energy poor due to social norms, among other reasons. With national SPUK budgets, municipal policy workers are the key to this: with tailored, local policies, they can financially support, stimulate energy-efficient behaviour and broaden access to the energy transition.

This study aims to illuminate policymakers' mindsets about energy poverty in the Netherlands on a municipal level and build a data-supported bridge between the complexity of energy poverty and the argument for gender-just policy. It uses Q methodology to group municipal policy workers' mindsets into *institution-focused* and *explorers.* Short-term, these mindsets pinpoint bottlenecks in municipal energy poverty mitigation. Long term, the mindsets uncover subjectivity in the policy cycle and present a transparent method to use in other parts of the energy sector.

Keywords: Q methodology, energy poverty, multi-level governance, energy governance, policy workers, municipalities, mindsets, subjectivity, gender-just energy transition

By this letter I declare that I have written this thesis completely by myself, and that I have used no other sources or resources other than the ones mentioned.

The sources used have been stated in accordance with the APA guidelines. I have indicated all quotes and citations that were literally taken from publications, or that were in close accordance with the meaning of those publications, as such.

Moreover, I have not handed in an essay, paper or thesis with similar contents elsewhere. All sources and other resources used are stated in the bibliography.

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Name: Hanna Kreuger

Place: Groningen

Date: 20 January, 2023

Signature: 

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Reading guide

This study consists of 6 chapters. Through a brief context analysis, preliminary literature review, and method justification, the problem will be introduced in Chapter 1. Chapter 2 further examines the set context and relevant theories, combining this in a conceptual model. Chapter 3 details the used methods and supports their significance. Chapter 4 contains the results of the used method and Chapter 5 reflects on the study. From the contents of Chapter 4 and 5, Chapter 6 draws conclusions. Additionally, Chapter 6 drafts theoretical, methodological, and political or policy recommendations. The rest of the paper includes used references and additional information in the appendix.

List of abbreviations & acronyms

CBS: Centraal Bureau voor de Statistiek *(Statistics Netherlands)*

CFA: Centroid Factor Analysis

NECP: National Energy and Climate Plan

PBL: Planbureau voor de Leefomgeving *(Netherlands Environmental Assessment Agency)*

PCA: Principal Factor Analysis

SDG(s): Sustainable Development Goal(s)

TNO: Nederlandse Organisatie voor toegepast-natuurwetenschappelijk onderzoek *(Netherlands Organisation for Applied Scientific Research)*

WEF: World Economic Forum

WHO: World Health Organization

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1 Introduction

In 2021, TNO concluded that 7% of the Dutch population lives in energy poverty (Mulder et al., 2021). The national government has swiftly enforced short-term financial buffers for citizens (Jetten, 2022; Kamerstukken II 2021/22 36057, nr 3; NU, 2022). Municipalities are tasked with further implementing energy poverty mitigation (Kuijpers, 2021; De Jonge, 2022). As part of 75inQ, this study examines this process and its interconnections with gender.

The Dutch national climate agreement (*Klimaatakkoord*) sets goals to reduce greenhouse gas emissions through transition measures affecting the built environment, mobility, industry, agriculture, and electricity (Rijksoverheid, 2019). The energy transition can be seen as an overarching goal for these policy departments involved in climate change policy. However, the national climate agreement does not mention energy poverty. The *Klimaatakkoord* is the primary input for the National Energy and Climate Plan of the Netherlands (NECP) that must be submitted to the European Commission. Energy poverty became an obligatory section in the NECP reporting format provided by the European Commission. So, the submitted final version of the Dutch NECP has an energy poverty section, although minimal (NECP, 2019).

However, energy poverty is essential to consider during an energy transition. The war between Ukraine and Russia not only shed light on the complex European interdependencies on Russian gas (Goldthau & Boersma, 2014) but also exposed the entire energy poverty iceberg, where only the tip was visible before (Goncharuk et al., 2021; Osička & Černoch, 2022; Streimikiene et al., 2021). Additionally, the COVID-19 pandemic added to this timely context as many people had to work from home, increasing household energy use (Hesselman et al., 2021; Streimikiene et al., 2021). Planbureau voor de Leefomgeving (PBL) (Middelkoop et al., 2018) concluded that, in 2014, 269.000 Dutch households could not pay their energy bill.

Ecorys (Schellekens et al., 2019) found that, in 2018, 8% of Dutch households spent 9% or more of their monthly income on their energy bill.

1.1 Energy poverty: definitions

The World Economic Forum (WEF) (2010) defines energy poverty as "the lack of access to sustainable modern energy services and products," as well as any condition where one lacks "adequate, affordable, reliable, quality, safe and environmentally sound energy services to support development." This is the broadest definition, as the World Economic Forum incorporates the global perspective. From the Dutch perspective, the Centraal Bureau voor de Statistiek (CBS) defined energy poverty, in 2018, by three indicators (CBS, 2021):

1. 25% (of the entire population) of the lowest income households with 50% (of the entire population) highest gas bill;
2. energy bill higher than 8% of their income;
3. financial means of households with private property.

This three-part definition, however, is solely income and energy bill based and has harsh percentual borders.

More recently, TNO (Mulder et al., 2021) defined energy poverty in The Netherlands as encompassing three facets—they take into account 1) affordability of energy, 2) the energetic quality of the house one lives in, and 3) whether someone has the choice and possibility of joining the energy transition. This study will use TNO's three-part definition and accompanying statistics, as these are referenced in most Dutch journalistic discourse around energy poverty, white papers, and (municipal) policy plans.

1.2 Invisible energy poverty

With their definition, TNO (Mulder et al., 2021) calculated 550.000 households living in energy poverty in The Netherlands, which is 7% of the Dutch population. This number also includes an estimation of invisible energy poverty, as, before being unable to pay one's energy

bill, most people undertake steps to shrink their bills. Invisible energy poverty encompasses people who consciously use less energy to make the end of the month (Clancy et al., 2017). TNO (Mulder et al., 2021) estimate this group to be about 140.000 households. This group is often an invisible group for policymakers and researchers since the majority is not depending on social welfare and pay their energy bill on time (Simcock et al., 2021). Hence, they are not visible in the data of the social welfare system or registered as energy debtors (Meyer et al., 2018).

1.3 The energy transition & energy poverty

The first part of TNO's definition (Mulder et al., 2021) of energy poverty (*affordability of energy*) is addressed in the NECP of the Netherlands, although briefly. The document states that "[t]he Netherlands has no specific objectives related to energy poverty" and mentions measurers such as subsidies, exemption from certain taxes, and allowances to relieve general poverty (NECP, 2019). The second (*the energetic quality of the house one lives in*) third (*whether someone has the choice and possibility of joining the energy transition*) part of TNO's definition, however, are not included. They are also more difficult to measure. There are no complete statistics on energy poverty in the Netherlands, which the abovementioned estimated 140.000 invisible households suggests.

It is important to pay attention to energy poverty while discussing the energy transition. The energy transition the Netherlands is currently tasked with only succeeds when all citizens contribute (Colasante et al., 2022; Shrestha et al., 2021; Sima et al., 2022; Steg et al., 2015). The *Klimaatakkoord* mentions citizen behaviour change and participation throughout (Rijksoverheid, 2019). It presses the critical role of the citizen in, for example, electric driving and installing solar panels (Rijksoverheid, 2019). "Broad and active involvement of citizens is essential to succeed in the large challenges of this climate agreement." (translated from p. 216 of Rijksoverheid, 2019) The *Klimaatakkoord* aims to transition to a country where all energy

is clean and affordable. It does so by activating industrial stakeholders, who realize technical innovation and infrastructural change; for example, by building wind turbines and connecting them to the energy grid. Commercial stakeholders then play their role by distributing and selling renewable energy on the market for consumers so they can switch contracts (Tabi et al., 2014). Such interventions lay the groundwork for a society that can run entirely on renewable energy.

In addition to these industrial and commercial efforts, citizens must change their homes and behaviour. Partly because, eventually, the energy grid will have no natural gas (Rijksoverheid, 2019). Most houses in the Netherlands are not insulated enough and therefore fit to run solely on electricity (Penders, 2021; Langeler, 2022). So, citizens must make their homes gas free and prepare for this switch. At the moment, homeowners take the lead in these efforts (CBS, 2008). Other examples include behaviour changes in energy use; switching to electric vehicles, installing solar panels, switching to green energy providers, purchasing energy-efficient appliances, and adapting general energy behaviour (Rijksoverheid, 2019).

Energy-poor people face obstacles with participating in the energy transition as they may not have enough disposable income, time, power, knowledge, or motivation to invest in their share of the energy transition (Guyet et al., 2021; Hanke et al., 2021). Due to this, energy poor people are more likely to struggle with purchasing in an electric vehicle (Bauer et al., 2021; Brown et al., 2020; Bockarjova & Steg, 2014), installing solar panels (Lee & Shepley, 2020), energy-efficient appliances ((Bouzarovski & Petrova, 2015; Pachauri & Rao, 2013), insulating their homes (Chen & Feng, 2022; Steg et al., 2015), and general "participating in the lifestyles, customs and activities" of modern society (Bouzarovski & Petrova, 2015). Furthermore, it can be difficult for energy poor people to gain "access to energy infrastructure" (González-Eguino, 2015). Finally, Feenstra (2021) explains that

> "[t]hose that can afford to invest in the energy transition benefit the most, while people that are already encountering injustices are faced with a widening gap to participate and benefit from the energy transition."

Streimikiene et al. (2021) support this juxtaposition of the energy transition and the danger for more "energy poverty vulnerability and justice issues." So, to make an entire energy transition work and to ensure that all citizens have access to clean, sustainable, and affordable energy sources, everyone in the Netherlands must be able to join.

Moreover, from the European perspective, the Netherlands also carries the responsibility to do so. The Netherlands signed the European Commission's (2021) Fit for 55, which connects the clean energy and equality goals by aiming for "[a] socially fair transition: tackling inequality and energy poverty through climate action." And the United Nations has two similar Sustainable Development Goals (SDGs): SDG5 (*achieve gender equality and empower all women and girls*) and SDG7 (*to ensure access to affordable, reliable, sustainable and modern energy for all*). The interconnection between SDG5 and SDG7 has been highlighted (Feenstra et al., 2022), but the gender lens on energy poverty mitigation remains uncommon (Feenstra & Özerol, 2021).

1.4 Municipal responsibilities and power; a decentralized system

To mitigate energy poverty in the short term, the national government installed a one-off energy premium for people with lower incomes (Kamerstukken II 2021/22 36057, nr 3), an energy price cap for all (Jetten, 2022), and two energy bill compensations of €190 for everyone (NU, 2022). However, the bulk of creating the foundation for long-lasting energy poverty mitigation has been delegated to municipalities through SPUK budgets, two sums of 150 million euros (Kuijpers, 2021; De Jonge, 2022). The deadline to spend the first €150 million SPUK budget is May 2023 (Kuijpers, 2021). With this decision, the responsibility to mitigate energy poverty is now local.

1.5 Tailor-made municipal solutions

The budget is allocated to the municipalities based on TNO's ratio of energy poverty (Kuijpers, 2021; De Jonge, 2022; Harmsen, 2022). Already visible now is due to the lack of a framework and uniform action, the range of solutions differs per municipality (Harmsen, 2022; Bouzarovski & Tirado Herrero, 2017). Municipalities are then free to decide which tactics to fund to tackle energy poverty for their citizens (BZKa, 2022). This freedom is a double-edged sword. On the one hand, municipalities can create tailor-made solutions for their citizens (Feenstra et al. 2021). On the other hand, capacity and expertise might be insufficient (Feenstra et al. 2021). Energy poverty is a multifaceted, complex issue. The causes and lived experience of it is unique to every energy-poor person. This argues for tailored, long-term, mitigating solutions reflecting local and contextual factors.

1.6 Gender-just energy policy

Looking at energy poverty through a gender lens exemplifies its complexity: energy poverty is not solely a poverty issue but the result of interconnected causes and existing inequalities (Rademaekers et al., 2016). A long-term, gender-just approach to energy poverty solutions that mitigate the root of the energy poverty instead of the outcome is more effective than quick fixes.

The existing Dutch national energy poverty solutions only offer a financial budget and lack "a national framework in accessing funds and developing activities." (Feenstra et al., 2021) These solutions only adapt (minimize damages) and do not mitigate (address the underlying causes). They deem energy poverty gender-neutral, meaning gender does not influence one's energy needs. The contrary seems true (Carlsson-Kanyama, & Lindén, 2007; Galvin & Sunikka-Blank, 2018; Räty & Carlsson-Kanyama, 2010; Wang et al., 2019). The existing policies are subsidies and energy price caps (Feenstra et al., 2021). Income determines who has access to these policies, which excludes invisible energy poor people. Energy subsidy is, for example, available for households who make a maximum of 120% of the minimum wage

(Rijksoverheid, 2022). In some cases, access is further generalized. For example, the most recently announced energy price cap (*Prijsplafond*) is not calculated on specific energy use (Jetten, 2022). The *Prijsplafond* is one cap for all Dutch citizens that is also not means-tested (Koster & Mouissie, 2022). This results in the exclusion of households that are not connected to the natural gas grid anymore, households connected to heat networks, people who are chronically ill, and students who are renting (Witlox, 2022). A similar solution the government offered to ease the high energy prices is a €190.- discount off the energy bills in November and December 2022 for all Dutch citizens (NU, 2022).

In addition to national measures, provincial and municipal policies and projects aimed at reducing energy poverty on the municipal level are also targeting certain income groups. Solutions include free led-bulbs (BZKb, 2022), advice on energy contracts (BZKc, 2022), and low-impact insulation measures (BZKd, 2022), to name a few. So, current Dutch energy policies on the municipal level aimed to alleviate energy poverty seem to be short-term, adapting technical and, mostly, financial measures.

To be explicitly clear, these measures can be effective and do not negatively impact any group. However, some lack a long-term perspective, and, at times, they exclude certain groups. Clancy and Roehr (2003) explain that "[e]nergy, in a Northern context, is seen as gender-neutral; women and men are regarded as equal in their uses of and energy view." Gender-just encapsulates a broader approach that intersects with inequalities based on gender, race, class, and sexuality. Chapter 2.6 will further explain gender-justice and gender-just policy.

1.7 Subject to subjectivity

There are no studies on the individual energy needs of Dutch citizens. As abovementioned, the needs and wishes of the population can differ based on gender, among other characteristics. Currently, there is also no wide academic discourse available to assess this issue in detail yet (González-Eguino, 2015). There is research into the experience of energy poverty on a

household level, but "conceptual frameworks and empirical evidence on the analysis of macro-level energy policy through a gender lens remains scarce." (Feenstra & Özerol, 2021). In order to contextualize and improve the outcome of gender-just policy aimed to mitigate energy poverty, we need to delve into the space where national mandates are being shaped into tailor-made regional and local policies: by policy workers on the municipal level.

This group is not only selected due to their responsibility but also due to their subjectivity. Prejudices can get in the way of inclusive solutions (Ascher, 1987). And in social policy, policy workers can be influenced by "biases, values or preferences." (Munro & Hardie, 2019). Additionally, there is an academic conversation about representation (Childs & Krook, 2006; Krook, 2015; Tremblay, 2006 and Yang et al., 2019). Chapters 2.1 and 2.2 further detail the Dutch municipal policy's definition and characteristics and the (relatively new) environment in which they operate. And Chapter 2.7 explains representation in the light of Critical Mass Theory.

1.8 Problem, aim & research questions

The space where the national budget turns into solutions for energy-poor people is not fully explored (Feenstra, 2021). In order to serve the estimated 550.000 Dutch households living in energy poverty, municipalities are at play in 2023 (Kuijpers, 2021; De Jonge, 2022). In light of this, and as part of the larger goal of 75inQ to accelerate the energy transition by promoting gender equality, this research project therefore, aims to 1) map efforts to tackle energy poverty on a municipal level in the Netherlands while 2) adding to the conceptual conversation around gender-just policy and energy transitions, and 3) critique and improve critical mass theory by quantitatively and qualitatively defining the (subconscious) mindsets of Dutch municipal policy on energy poverty mitigation, regardless of their gender.

This study uses the analysis of energy poverty through the gender lens as 1) a way to emphasize the complexity and interconnected causes of energy poverty in the Netherlands and 2) a tool to measure whether this complexity has a space in the municipal policy cycle.

Specifically, the study will answer the main research question: *What are the core perspectives of Dutch energy policy workers on tackling energy poverty on the municipal level in the context of a gender-just transition?*

Sub-research questions the project will answer:

1. *What are the main mindsets of municipal energy poverty solutions in the Netherlands?*
    a. *To what extent are these policies gender-just?*
2. *To what extent is gender present in the mindsets of Dutch policy workers when tackling energy poverty on the municipal level?*
3. *Do Dutch female policy workers tackling energy poverty on the municipal level display a more prevalent focus on gender?*

To uncover these mindsets, this study uses Q methodology. It bases its methods on the methodological work of Davies (2017), Watts & Stenner (2005 & 2012), and Webler et al. (2009).

Chapter 2 gives further theoretical context and a conceptual model linking all the concepts. Chapter 3 will detail the methods used and supports their significance. Chapter 4 contains the results, and Chapter 5 reflects on these. Chapter 6 draws conclusions and presents academic, methodological, and political or policy recommendations.

2 Contextual & theoretical framework

2.1 Policy workers: definition

This study uses the term and research group policy workers. In addition to a brief definition in the glossary (Appendix A), this section will define this group further. Even though policy workers are active in all levels of governance, this study will focus on policy workers on the municipal level. Ideally, policy workers follow a process of "problem identification, consideration of available options (informed by an evidence base provided by objective experts), consultation, decision-making and finally implementation." (Shortall, 2013). Additionally, there is a multidisciplinary to policy work, as "[t]he term policy worker does not imply a mere functionary who carries out explicit, detailed instructions." (Bertelli, 2016) Policy workers usually operate in an ambiguous and complex space (Considine, 1994; Gualtieri, 1999). Their work is often tied to persistent issues with an unpredictable nature (Considine, 1994). In addition to their expertise, policy workers can use the "wisdom of the public" to produce policy (Bertelli, 2016). Acquiring wisdom of the public, or stakeholder engagement, can be done through, for example, surveys, think tanks, workshops, or other citizen events. "Stakeholders contribute essential expert and experiential knowledge about complex policies and programs [,]" which can lead to "detailed knowledge of how policies roll out in practice and can contribute in-depth knowledge of their different impact in particular situations." (Shortall, 2013)

2.1.1 Subjectivity

Policy workers are no objective robots. Prejudices can get in the way of inclusive solutions (Ascher, 1987). Policy workers can be influenced by "biases, values or preferences." (Munro & Hardie, 2019). Bertelli (2016) further nuances the policy worker and points to the fact that "policy workers are citizens themselves, and the private information they have may be of significant democratic value." Shortall (2013) also disputes the belief that policy workers move

in a “rational process, value-free and where the personal beliefs of policy makers and other actors are irrelevant.” Shortall (2013) highlights that “research has shown that policy politics is itself about establishing definitions of and assigning meanings to social problems.” (Shortall, 2013) The first step of creating policy, problem identification, is therefore contested.

Another “added complication that evidence is itself disputed[,]” which is “particularly clear around debates about genetically modified crops, drug policy and climate change.” (Shortall, 2013) Not only do subconscious personal prejudices or biases influence one’s view of an issue, but it also influences perception of information. “How evidence is received will depend on the social, economic and political context in which it is presented.” (Shortall. 2013) Finally, a policy could also be influenced by existing connections (within and between governmental institutions) and normative understandings of social issues (Wilkinson et al., 2010). So, the steps “consideration of available options” and “consultation” may also be tainted.

2.1.2 Information requirement

Finally, for the context of this study, it is important to note that it is not yet clear how the information requirement for policy workers exactly works. Kirk (1999) found that policy workers find and use information in their entire process. A policy worker produces policy with the use of their “considerable expertise, knowledge, and skill[,]” Bertelli (2016) explains further. However, Georgiou & Makri (2015) point out that “the information behaviour of local government policy workers has not been widely studied.” So, how policy workers find, store and use information to produce their policies remains a research question (outside this study). Most likely, their methods differ by country, region, and organization.

2.1.3 Challenges for policy workers

Berryman (2006) found that “ill-structured problems, shifting goals, time stress and action-feedback loops” might obstruct the production of sound policy. There is contestation about the definition of energy poverty (Straver et al., 2020). WEF, PBL, CBS, and TNO all handle different definitions, which points to an ill-structured problem. The deadline surrounding the

SPUK budget gives municipalities added time stress within their assigned responsibility of energy poverty mitigation. In the context of energy poverty, Feenstra et al. (2021) argue that this "current lack of a dedicated national framework hampers the effectiveness of local level initiatives, as well as risking the energy poor being left further behind in the energy transition."

2.2 Multi-level governance, decentralization & energy poverty mitigation

The challenges for municipalities can be put in a historical governance perspective. In the late 1990s and early 2000s, Europa saw a shift in governance (Jeffery & Peterson, 2020). "[T]he structure of public work ha[d] become less and less hierarchical." (Kettl, 2002) And Europe saw a "shift [in] the balance towards a sharing of tasks and responsibilities; towards doing things together instead of doing them alone." (Kooiman, 1993) In other words, Kooiman describes how issues were now tackled by collaboration through multiple organizations throughout multiple layers of government instead of by the national government only. Marks (1993), then coined the term multi-level governance to describe this new emerging trend that solidified after the turn of the century.

Multi-level governance is seen both as "shifting competencies between local, national and supranational governmental institutions," as well as, more detailed, "taking into account not only traditional methods of public regulation by the state, but also the entire range of actions and institutions which provide order (including public–private partnerships, nonstate actors and so on)." (Kern & Bulkeley, 2009) In other words, decisions are not made by one layer of governance; common goals are set and tasks are divided. National authority is spread across more layers of governance, making its way to a more local authority (Hooghe & Marks, 2003; Pierre & Peters, 2020). Like other European countries, the Dutch government "government has been increasingly decentralized, and local competencies expanded." (Kern & Bulkeley, 2009) The SPUK budgets exemplify this shift: municipalities must be competent to implement these budgets and deal with new mandates and legal obligations.

Hooghe & Marks (2003) point out that "[p]olitical science has had far more to say about how collective decisions can and should be made than about for whom they can and should be made." In other words, the academic discourse so far focused a lot on the inner systems, much less discussed is "jurisdictional design – the "for whom" question." (Hooghe & Marks, 2003). This study will aim to answer part of that question for the Dutch municipal layer of multi-level governance.

2.3 Municipal energy poverty mitigation in The Netherlands

We look at energy poverty mitigation on the municipal level by combining the definition of policy workers, their challenges, the current Dutch governance structure, and a relatively new sense of accountability. In the Dutch context, Feenstra et al. (2021) define four layers: national, provincial, regional, and municipal.

As the introduction to this study mentioned, the Netherlands has no national defined energy poverty definition (Straver et al., 2020) or national policy to asses energy poverty (Feenstra et al., 2021). Feenstra et al. (2021) press that "[t]he lack of national policy on energy poverty is a barrier within the decentralised system because, without a national policy, there are no centrally defined goals." This coincides with the earlier mentioned challenge for policy workers; the importance of problem defining in the policy cycle, especially for social policy (Berryman, 2006).

Assessing a problem such as energy poverty, given the governance structure and characteristics of the policy worker, then seems complex. The access to support, for example, differs significantly between municipalities (Harmsen, 2022). Hesselman et al. (2021) point to, for example, "[a] support scheme for essential households costs in the Netherlands … [that] attracted much critique because its implementation at municipal level led to widely different eligibility criteria and amounts (i.e. between 1.000 and 6.000 euro's over six months)." And even though the national budget to mitigate energy poverty is allocated to the municipalities

based on the ratio of energy poverty defined by TNO, the type of solutions also differs per municipality (Harmsen, 2022; Pelgrim, 2023). Of course, each municipality is different, and, as mentioned, the charm of their responsibility to mitigate energy poverty on a municipal level is that they make tailor-made solutions for the local context. However, this can also result in spatial injustices (Bouzarovski & Tirado Herrero, 2017). For example, one municipality gives out a water-saving shower head and another finances a washing machine (Pelgrim, 2023).

Berryman's (2006) risk factors ill-structured problems, shifting goals, and time stress are at play here. The urgency of energy poverty grew due to the COVID-19 pandemic (Hesselman et al., 2021) and the war between Ukraine and Russia (Goldthau & Boersma, 2014; Osička & Černoch, 2022; . Goncharuk et al., 2021). So, a problem requiring more information now has new deadlines and, therefore, the additional time stress for municipal policy workers.

2.4 Knowledge-sharing & interventions mapped

This section maps existing efforts to mitigate energy poverty and the solutions these produce. We distinguish between knowledge sharing through passive information and active collaboration. The passive information efforts consist of toolkits, online libraries, data, webinars, in-person lectures, and best practices. These are all open source and available online for municipalities and other actors to consult. Active collaboration maps efforts in which actors (provinces, municipalities, independent researchers, energy suppliers, energy cooporations, citizens) come together in meetings to share their experiences or join forces in a project.

Table 1 maps efforts under the abovementioned categories. The number of toolkits, working groups, collaborating municipalities, charities, and other organizations is rapidly increasing. This study can, therefore, not address all but has, to the best of its ability, mapped the types with some added examples.

Table 1

Energy poverty knowledge-sharing mapped

	Passive information *Toolkits, online libraries, data tools, lecture-type (online and in-person) meetings, and successful examples*	***Active collaboration*** *Inter-municipal, provincial, and national collaboration*
National	De Energieke Gemeente (https://energy.nl/tools/de-energieke-gemeente/) Webinars Frequently Asked Questions (https://www.volkshuisvestingnederland.nl/onderwerpen/aanpak-energiearmoede/veelgestelde-vragen) Best practices (https://www.volkshuisvestingnederland.nl/onderwerpen/aanpak-energiearmoede)	Community of Practice (CoP) Energiebank Energie Samen
Provincial	North Holland 's Servicepunt Duurzame Energie (https://servicepuntduurzameenergie.nl/) Energieteam Fryslân (https://www.fryslan.frl/energieteam-fryslan) Overijssel (https://www.nieuweenergieoverijssel.nl/) Energiek Zeeland (https://energiekzeeland.nl/wat-is-energiearmoede/) "Brabant doet wat" (https://www.brabant.nl/subsites/brabantdoetwat/projecten/energie/energie-voor-iedereen) Actieplan Limburg (https://www.limburg.nl/actueel/nieuws/nieuwsberichten/2022/december/limburgs-actieplan-aanpak-energiearmoede/) Groningen Energieloket (https://regionaalenergieloket.nl/groningen)	RES Regionale Energiestrategy Community of Practice (https://www.regionale-energiestrategie.nl/ondersteuning/community+of+practice+res/default.aspx) Zuid Holland's Community of Practice (https://energy.nl/publications/community-of-practice-energietransitie-zuid-holland/) Nieuwe Energie Overijssel (https://www.nieuweenergieoverijssel.nl/)
Municipal		VNG (Vereniging van Nederlandse Gemeenten)
External	TNO's energy.nl for independent, research, data, and tools (https://energy.nl/thema/mens-en-economie/energiearmoede/) Platform 31 (https://www.platform31.nl/wat-we-doen/kennisdossiers/energietransitie-armoede-en-gedrag) Toolkit by TNO, Alliander, Eneco, EnergieFlex, !WOON, Gemeente Utrecht en Tertium (https://energiearmoede.nl/)	Schuldhulpverlening Voedselbank EnergieSamen

These knowledge-sharing initiatives, combined with municipalities' research, result in different interventions to adapt for and mitigate energy poverty. For TNO, Tilburg et al. (2022) define the existing efforts in categories of: saving campaigns, energy coaches and teams, subsidy plans and emergency funds, social activities, and white goods policies. Harmsen (2022) adds free public transport or vouchers for clothing. And Pelgrim (2023) distinguishes energy

coaches (advice on energy behaviour) and energy fixers (free insulation and energy efficient modifications to houses).

Finding the people in need of these interventions also differs per municipality. Usually, municipalities already have a good overview of people who financially struggle (Appendix C, interview with Hesselman), they are alerted by energy suppliers (Appendix C, interview with Sialino), and collaborate closely with schuldhulpverlening (debt assistance) or the voedselbank (food bank) (Appendix F). Due to the sudden rise in energy poverty, municipalities encourage citizens to ask for help through local magazines, social media, flyers, and in libraries (Pelgrim, 2023). Other municipalities take a more direct approach and ring the doorbell of all households that are statistically more likely to be vulnerable (Pelgrim, 2023). However, Pelgrim (2023) also found that, due to capacity and time, not every municipality can track down everyone who needs help.

2.5 Gender & energy poverty

Women are more likely to suffer from energy poverty compared to men. However, "very limited gender-disaggregated data on energy use is available to inform policymaking and monitor the implementation of policy interventions" (Feenstra, 2021). Clancy et al. (2017) show that there are common denominators in energy-poor households, as predominantly single mothers with children and older women who live alone feel the pressures of energy poverty. Eurostat (2021) concludes that, compared to other households, single mothers with children to care for are more likely to live in houses with bad energetic quality (leaking roofs, damp walls, floors or foundations, or rot in window frames or floors). The European Institute for Gender Equality (EIGE) has calculated that in Europe, "the difference between women and men at risk of poverty is 1.9 p.p., to the detriment of women, and has not improved since 2010." (EIGE, 2020)

Several academic disciplines add to these observations of the gendered face of energy poverty. First, behavioural science shows that men and women have different energy consumption levels (Carlsson-Kanyama, & Lindén, 2007; Galvin, & Sunikka-Blank, 2018; Räty & Carlsson-Kanyama, 2010; Shrestha et al., 2021; Wang et al., 2019). Men use more energy in, among other things, travel and eating out, alcohol, and tobacco (Carlsson-Kanyama, 2010).

Economic research supports this conclusion as well. The intersection between gender and socioeconomic class seems the most logical route, as gender income gaps are prevalent across Europe and age groups. The gender money gap between men and women in the Netherlands is 86.6 (EIGE, 2022). A score of 100 would be complete equality. Moreover, while the pay gap varies per job position, EIGE (2020) shows that "women earn less than men in all sectors." Women in the Netherlands also have a higher risk of falling into poverty (EIGE, 2022). Combining the already mentioned gender, income, and age parameters, there is also data available. For example, men above 65 usually have a higher income than older women due to their higher pension benefits (DWP, 2018). Adding the demographic fact that women are getting older than men worldwide, women live longer with lower incomes than men (Feenstra, 2021).

Social norms come into play as well. EIGE (2020) concluded that women's employment decreases with the number of children in the family." This responsibility kept, in 2020, 7.7 million women from working (EIGE, 2020). And almost five times more than men, women work part-time to care for children or others (EIGE, 2020). In the context of energy, to restrain from falling into energy poverty, Carlsson-Kanyama & Lindén (2007) found that some Swedish women resorted to doing laundry and the dishes at night or on the weekends (lower tariffs) and put their clothes outside to dry instead of using an electric dryer to save money on their energy bill. This is an anecdotal example of how women's roles in the household affect their time.

Although these types of behaviour are better for the energy bill and, in a larger context, the climate, they "[affect] the timing and types of household chores with resulting increased workload for women." (Carlsson-Kanyama & Lindén, 2007) Furthermore, another social dimension is the role of women in households in relation to others in the household. For example, some women have little bargaining power, which obstruct them from switching to more energy efficient behaviour or partake in larger investments (Pachauri & Rao, 2013).

Finally, physiological reasons can also explain the gendered side of energy poverty. As women's life expectancy is usually longer (Eurostat, 2019), they are more likely to be left to pay for the energy bill by themselves. There is a negative causal relationship between women's health and energy poverty (Abbas et al., 2021). Women are also more sensitive to hotter and colder weather (Iyoho et al., 2017, Sánchez-Guevara Sánchez, 2020). The Swedish anecdotal evidence showed that "lower indoor temperature and fewer hot baths had a greater impact on women than on men." (Carlsson-Kanyama & Lindén, 2007) Moreover, women are more prone to "winter mortality" (Wilkinson et al., 2004; Folkerts et al., 2022).

This brief, multidisciplinary look at the gendered face of energy poverty outlines the complex undercurrents of energy poverty. It seems that the abovementioned combination makes women more vulnerable for energy poverty and less resilient to mitigate the impact of energy poverty, and climate change as a whole (Creusen & Feenstra, 2022). Dutch energy poverty data does not correct for gender (Feenstra, 2021), so there are no statistics on the exact number of Dutch energy-poor women. However, we know that 1 out of 5 households in energy poverty is single-parent (Pelgrim, 2023). And the parents in these households are predominantly women (CBS, 2007; CBS, 2017).

2.6 Gender-justice

Placing gender on the policy cycle, (energy) policy can be categorized into different stages of gender inclusivity. Feenstra (2021) defines this scale (from least to most engaged with gender)

as "gender-blind, gender-neutral, gender-sensitive, gender-aware, gender-mainstreaming, gender-transformative, gender-responsive, [and] gender-just."

Sovacool & Dworkin (2015) have developed a three-part justice framework: recognitional, distributive, and procedural (first cell of Table 2). McCauley et al. (2013) provide normative questions for this. And Jenkins et al. (2016) add the evaluative layer. Combined, they form an energy justice framework. Feenstra (2021) defines the gender-just energy policy by adding the gender dimension to the justice tenets (Sovacool and Dworkin, 2015), evaluative (Jenkins et al., 2016) and normative (McCauley et al., 2013) layers. “This multi-faceted analytical function of the framework deepens the insight on how to engender energy transitions[,]” Feenstra explains (2021).

Table 2
Energy justice & gender based on Feenstra (2021)

Tenets	**Evaluative**	**Normative**	**Gender**
Recognitional	**Who** is ignored?	Who should be **recognised**?	Intersectionality of users and their **needs**
Distributive	**Where** are the injustices?	How should we **solve** them?	Gender equality and gender equity in **access**
Procedural	**How** fair is the process?	Which new processed to **develop**?	Inclusive representation and acknowledgements of inclusive **rights**

Sovacool et al. (2016) use procedural justice (highlighted in Table 2) as a way to analyse policymaking processes in the energy context. Although all three tenets are connected to the research objectives, this study uses the procedural justice dimension as its theoretical ground because it focuses on the municipal policymaking proces. Additionally, the study chose to focus on procedural justice because Feenstra (2021) argues that, compared to recognition and distributive justice, gender and energy research shows “little insights on the representation of vulnerable energy users in policy processes and the reflection of their rights in legislation and their needs in policy documents (procedural justice).”

2.7 Critical Mass Theory & critique

In addition to the key position (Chapter 2.2) of and urgency (Chapter 2.3) felt by of Dutch municipal policy workers in energy poverty mitigation, the academic discussion and current consensus around gender representation in policymaking bodies is important to highlight in order to justify the research population.

Some scholars connect the low representation of women in decision-making positions to gender-unjust energy policy through the critical mass concept. Kanter (1977) coined the term for gender studies and defined with it the theory that there is a tipping point (critical number of people of the same gender) in a policymaking body at which this group becomes influential. In other words, when policy excludes a particular group or perspective, this can derive from excluding this group or perspective in the decision-making body. Drude Dahlerup (1988) popularized and further analysed this concept when she put the tipping point for women to influence decision-making groups at 30%. Kathleen Bratton (2005) later put this number at 30%.

More recent scholars critique the concept and discussion about the percentage. The theory sometimes seems to work (Kittilson 2008; Thomas 1994). However, the theory does not hold up in a similar number of other studies (Carroll 2001; Crowley 2004). EIGE (2021) has concluded that there are gender gaps in decision-making. However, increasing the gender balance of decision-making groups in order to realize gender-just policy is too simple of a solution. Even when a decision-making body grows to be more gender-balanced, there is no clear evidence that the policy they make consequently takes into account the female perspective more (Childs & Krook, 2008). Childs and Krook (2008) argue that the theoretical origins of this widely used critical mass concept need to be further examined and clarified.

Furthermore, Feenstra and Clancy (2019) press that "the assumption that women will enact gender aware (gender) policies actually places the burden for achieving gender equality

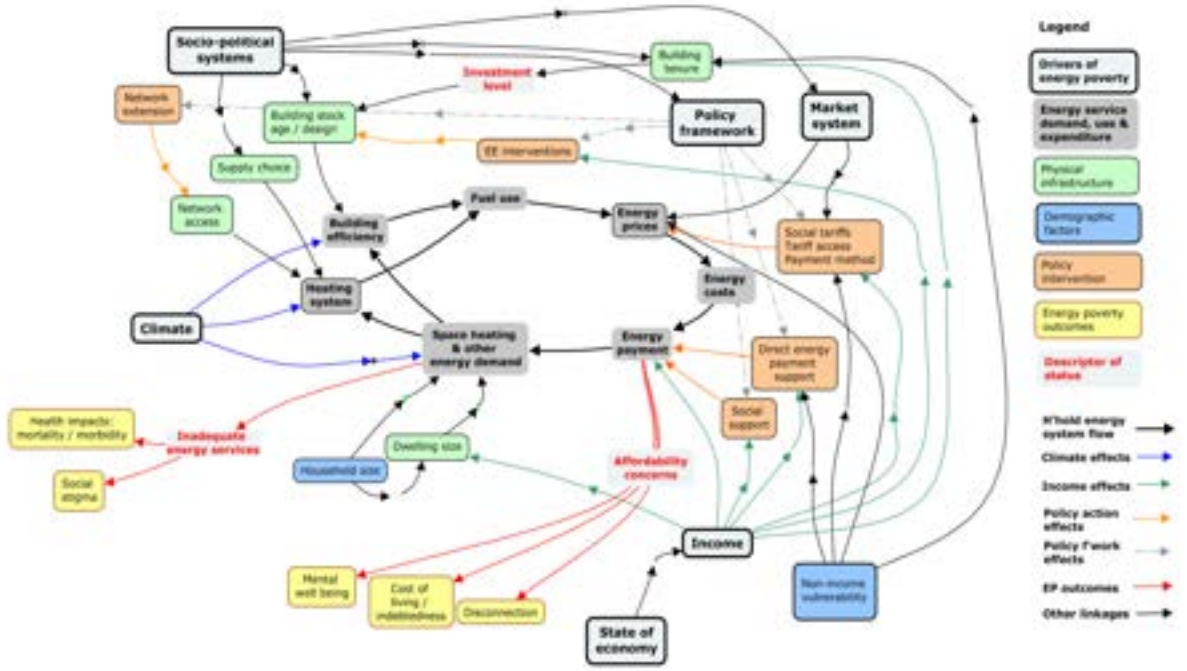
on the single-woman-representative and takes away any responsibility from men." In other words, the assumption that a more gender-balanced policymaker body will automatically result in gender-just energy policies might be too straightforward.

The consensus is that, instead of examining percentages, the decision-making systems and participators themselves need to be examined (Childs & Krook, 2006; Krook, 2015; Tremblay, 2006 and Yang et al., 2019). This study, therefore, examined the decision-making system (multi-level governance & decentralization) in Chapter 2.2 and will define the mindsets of the participators (Dutch municipal policy workers working on energy poverty). Chapter 3 will explain how the mindsets will be extrapolated.

2.8 Conceptual framework of energy poverty

For Trinomics, Rademaekers et al. (2016) presented energy poverty indicators (Figure 1). This study draws on the policy interventions (orange) made by the policy framework (grey, lined with black). This map does not include policymaker's mindsets, so this study's conceptual model (Figure 3) has these added.

Figure 1
Trinomics (2016) conceptual map of the drivers, causes and effects of energy poverty



The Trinomics energy poverty indicators are multifaceted and very complex, Feenstra (2021) identified the gender indicators operating in the drivers (Figure 2).

Figure 2
Set of gender indicators operating in the drivers, causes and effects of energy poverty (Feenstra, 2021)

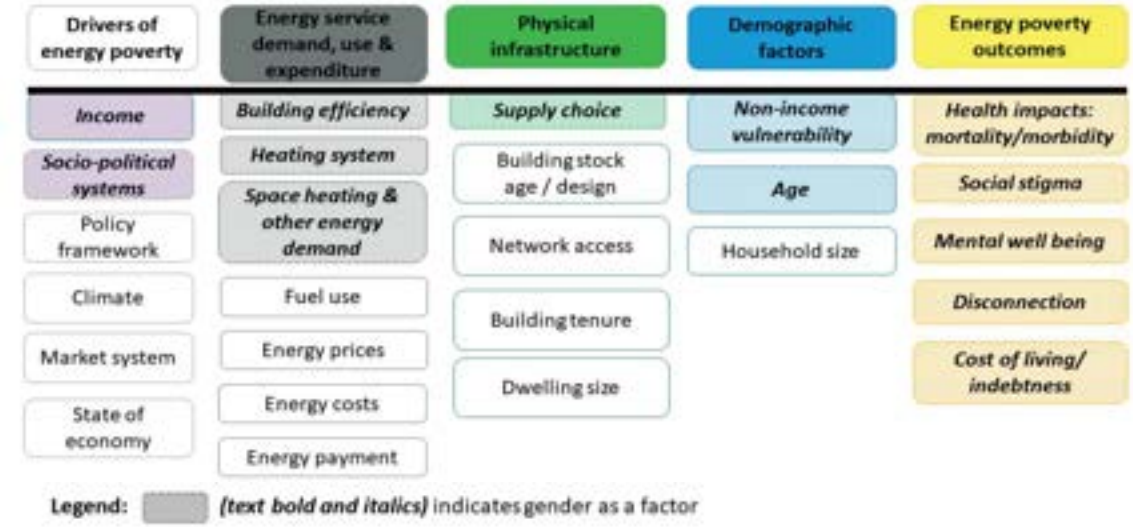
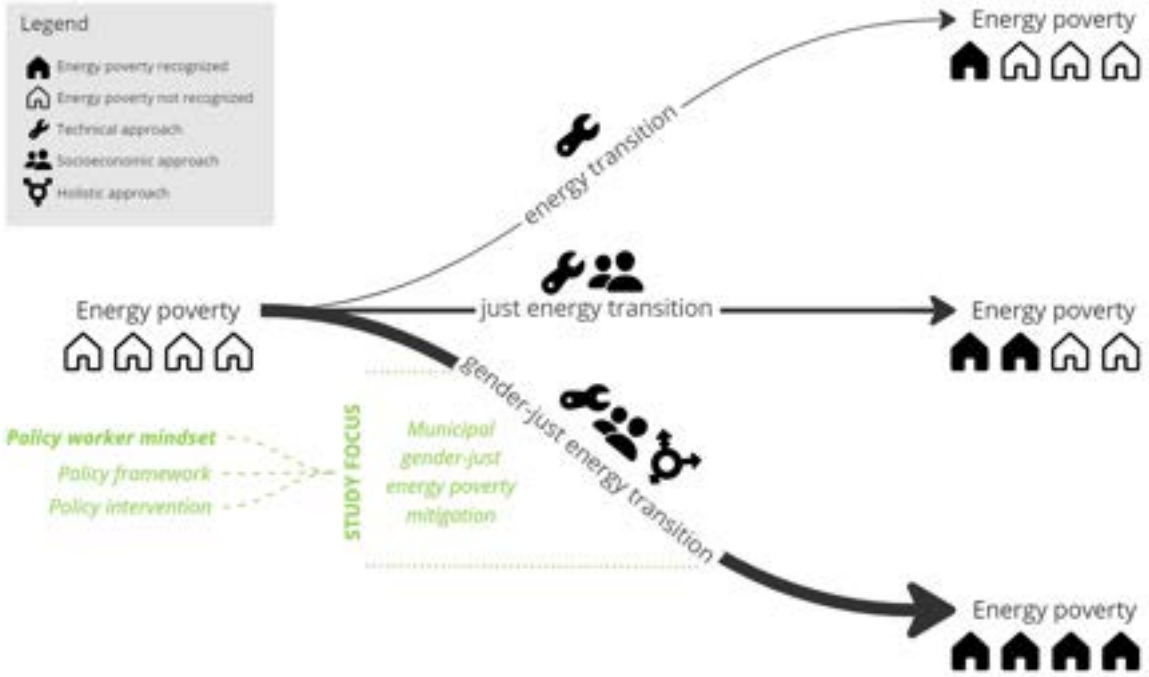


Figure 3 presents this study's conceptual model. The section marked in green is the focus of this study. The Trinomics *policy framework* (set in Chapter 2.2 & 2.3) and *policy intervention* (mapped in Chapter 2.4) are used and *policy worker mindset* (theory in Chapter 2.1 and conclusion in Chapter 4).

Figure 3
Conceptual model for energy poverty mitigation measures (Feenstra, 2021: Feenstra et al., 2021; Rademaekers et al., 2016)



N.B. The houses do not depict calculations of energy poverty, they are to illustrate effect.

3 Research design

This research project aims to 1) map efforts to tackle energy poverty on a municipal level in the Netherlands while 2) adding to the conceptual conversation around gender-just policy and energy transitions, and 3) critique and improve critical mass theory by quantitatively and qualitatively defining the (subconscious) mindsets of Dutch municipal policy on energy poverty mitigation, regardless of their gender.

This study uses the analysis of energy poverty through the gender lens as 1) a way to emphasize the complexity and interconnected causes of energy poverty in the Netherlands and 2) a tool to measure whether this complexity has a space in the municipal policy cycle.

Specifically, the study will answer the main research question: *What are the core perspectives of Dutch energy policy workers on tackling energy poverty on the municipal level in the context of a gender-just transition?*

Sub-research questions the project will answer:

4. *What are the main mindsets of municipal energy poverty solutions in the Netherlands?*
    b. *To what extent are these policies gender-just?*
5. *To what extent is gender present in the mindsets of Dutch policy workers when tackling energy poverty on the municipal level?*
6. *Do Dutch female policy workers tackling energy poverty on the municipal level display a more prevalent focus on gender?*

Sub-research question 2 will be answered through desk research on grey and academic literature as well as with the help of expert interviews and interviews with the surveyed policy workers. Sub-research questions 1 and 3 will be answered through Q methodology. In short, this study conducts triangular research through desk research, a literature review, the Q methodology survey, and interviews.

3.1 Mapping subjectivity

Q methodology is simultaneously a qualitative and quantitative approach that uncovers subjectivity (opinions, values, etc.) in its research subjects (Davies, 2017). It is an exploratory methodology that unveils cohorts of like-minded people regardless of characteristics usually used in quantitative science (such as age, gender, and region) (Watts & Stenner, 2005). Social and political sciences use Q due to its ability to unveil subjectivity (Dryzek and Berejikian, 1993; Durning, 1999). Within the energy sector, the method is widely used as well (Barry and Proops, 2000; Burns and Cheng, 2007; Clarke, 2002; Frantzi et al., 2009; Kvakkestad et al., 2007; Ligtvoet et al., 2016; Swedeen, 2006; Woolley and McGinnis, 2000; Wolsink & Breukers, 2010). In gender research, using Q is especially unique, as this academic field rarely utilizes data. Combining desk research, a literature review, the Q methodology survey, and interviews, this study takes a triangular approach to gender studies.

To be explicitly clear, the results will not correct for external influences such as political views. The project simply shows the current views of the participants and groups them into mindsets. It is also not the aim of Q methodology to produce a dataset that can be generalized for an entire population. This study solely targets policy workers tackling energy poverty on the municipal level.

The expected outcome is that the gender of the participant has no notable effect on the mindset of the groups. We assume that the expertise of the participant, the department (under which the energy poverty portfolio falls), and the political makeup of the municipality the participant works for might have more influence on the group mindset than the participants' characteristics, like age and gender. Additionally, it is expected that biggest cohort(s) will not be gender-aware.

The rest of the method section details the software selected for this study as well as each step of the Q method, based on a combination of Davies (2017), Watts & Stenner (2005; 2012), and Webler's (2009) approach to the method.

3.2 QMethod Software

This study used a license for the online software program QMethod Software (QMethod Software, 2023). The software is 1) designed to create an online survey format for Q methodology and 2) can aid in the analysis of the dataset that it consequently produces. Appendix B defines all customization options of *QMethod Software.*

All participants are given a randomized code to which their input is connected. The software produces a dataset that can be accessed and exported to an Excel file at any time in the study. Additionally, the software offers a status dashboard that quickly summarizes the number of completed, in progress, and started (opened the link but not completed any steps).

The final dataset can be analyzed manually as well within the program. The software helps "[analyzing] data using an R-based analysis engine to provide real-time reports as participants submit their QSorts." (Lutfallah & Buchanan, 2019) There are several ways the software allows for personalization, per literature on Q methodology (Lutfallah & Buchanan, 2019), highlighted further in Appendix B.

3.3 The use of Q in this study

For this study this method will be used in the setting of an online survey, in which the participants are presented with 31 statements and asked to sort them on importance. The prompt they first see is: *Sort the statements according to what you agree to be the most important to least important approach/idea/concept guiding the process to tackle energy poverty in the Netherlands.* Second, four participants will be interviewed to explain their rankings.

The quantitative data from the online survey will be analyzed to uncover patterns in the ranking of each participant. These patterns will then be interpreted and sorted into cohorts of

people with similar responses. These cohorts are called factors. The qualitative data from three interviews will accompany the interpretations.

3.4 Q-set (statements)

A minimal set of 30 stimulus items is sufficient (Davies, 2017). In total, 53 statements were extracted from policy toolkits (EIGE, 2021; Barella et al., 2021), energy policy papers (Clancy et al., 2007; DellaValle & Sareen, 2020; Feenstra et al., 2021; Nguyen & Su, 2021; Simcock et al., 2021), newspaper opinion articles (by Trouw, RTL Nieuws, NRC, de Stentor, Friesch Dagblad, Volkskrant, Financieel Dagblad, Dagblad van het Noorden, BNN VARA, de Groene Amsterdammer), and two interviews. These interviews were conducted with Marlies Hesselamn, Lecturer of International Law at the University of Groningen (see Appendix C for transcript), and Julia Sialino, project leader of Energy Poverty at Vattenfall (see Appendix C for transcript). These interviews were conducted to contextualize the legal and commercial perspectives on gender poverty, as academic literature and newspapers did not detail those areas. So, the study conducted literature and public opinion review on what "the commonly communicated ideas are related to the topic" are (Davies, 2017).

Combined, this resulted in 53 different statements, which is more than necessary for a Q sort (Davies, 2017). Not only does the Q methodology not require as many statements, but this amount would also make completing the online survey significantly longer and less attractive to participate. Together with another researcher, the statements were narrowed down to 31 (Appendix D). The reasoning behind narrowing down the Q-set was twofold.

First, the Q-set had to include the most comprehensive array of opinions on how to mitigate energy poverty on the municipal level. We critically assessed statements that seemed similar to one another or too broad for the scope of the study. We tried to balance opposing opinions so that the statements could be placed on the grid, roughly opposing one another.

Second, the Q-set had to include gender statements in order to test whether Dutch energy policy workers deemed these statements true and, if so, important. We ensured that there were enough gender statements to test this and that these statements were diverse. In total, there were eight statements defined as gendered. On average, each category (political, economic, social, technical, environmental, legal) had five statements, political and social more than others. The gender statements were distributed across the categories. It is clear from the literature research that the (gender-)just transition and gender-just policy are relatively new and unused concepts in municipal policy-making. More gender statements could have confused, and less would not have suited the research objectives.

3.5 P-set (participants)

At least 20 participants (P-set) is ideal for this method, as its aim is not to "make claims about the proportions" of certain opinions in the greater population, but to "identify the dominant discourses existing around a topic." (Davies, 2017) Recruitment was solely based on profession, as the objective of this study is to uncover the core perspectives of municipal energy policy workers focused on tackling energy poverty, specifically. Additionally, the study aimed to survey both men and women and, in general, a group of participants with the most diversity (in age, region, and level of education) as possible. However, due to the small pool of policy workers in the Netherlands working on energy poverty, the paper has not reached a statistical minimum for these characteristics.

In order to find participants, a recruitment post was posted on LinkedIn by the primary researcher in her own network and within the 75inQ community. These posts included a short research summary and a link to the online Q survey. They were (as of the 20th of January 2023) viewed 3.758 (own network) and 75 (community) times. 75inQ posted recruitment posts in two styles on their LinkedIn page as well. These (as of the 20th of January) were viewed 246 and 264 times, respectively. All posts (as of the 20th of January) were reposted 23 times. The main

researcher also sought one-on-one contact with 21 energy policy workers in her network. Also, almost all 344 municipalities were approached by e-mail. Some municipalities did not have openly public e-mail addresses, so they were not approached by e-mail. These efforts resulted into 46 participants. Of these participants, 21 agreed to be approached for an interview post-survey. These were scheduled after the initial factor analysis to ensure equal representation.

3.6 Data collection

In order to perform this study on the largest scale possible. The license to *QMethod Software* was used (QMethod Software, 2023). The software was used to create an only Q sorting process and collect, sort, and analyze the data.

The online survey first asked the participants for their consent to use the data in this study. The participants were then asked about their gender, age, race, and level of education (Appendix E). Finally, it explained how the sorting grid works. The online survey also featured a short video (made by *QMethod Software* themselves) to visualize the process before participating in the study.

If the participants agreed to participate in the study, filled out their personal information, and watched the instruction video, they immediately continued with the first step of the sorting process. The 31 statements were presented, so the participants could read through them all carefully to familiarize themselves with them. Then, the participants were asked to sort the statements into three piles (the amount per pile does not matter): agree, neutral/do not know, and disagree. The participants could do so by clicking thumbs down (disagree), question mark (do not know/neutral), or thumbs up (agree).

On a new page, the following step was sorting the statements from the participants' three piles into the sorting grid. Table 3 shows the sorting grid used in this study, which has 31 slots for the given statements. More spaces for *agree* and *disagree* have been created, because it was

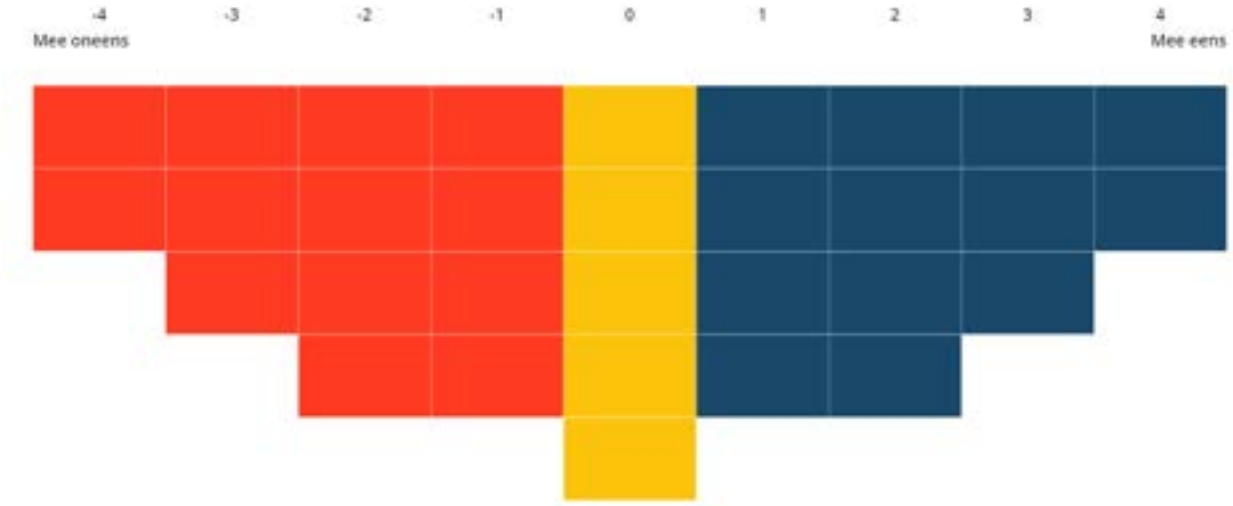
expected that participants would not select *neutral/do not know* for most statements, as the statements have to do with their daily profession and a current, intensively debated issue.

Table 3
Sorting grid

Disagree								Agree
-4	-3	-2	-1	0	+1	+2	+3	+4

Figure 4 shows the grid in the *QMethod Software*, in 75inQ's (study supplier) house colours.

Figure 4
Sorting grid in online software (empty)



The participant sorted the statements they agreed with, working from the right to the middle. They did the same for the statements they disagreed with, working from left to the middle this time. Logically, the statements in the pile the participant deemed neutral or did not have an opinion on remain. The participant is asked to sort these in the remaining spots on the grid.

On the first try, the statements will most likely not fit how the participant wants them to. So, the participant is allowed to make changes to the grid. If the participant is happy with

their completed Q sort, they can submit it. Figure 5 shows an example of a filled-out grid in the online survey. N.B.: The participants could zoom in and out on the grid as well.

Figure 5
Sorting grid in online software (filled out)

After submitting their Q-sort, the participants were asked if they missed anything in the statements or had general feedback. Moreover, in any part of the online survey, the participant could also click a help button, and more information about their step in the study would appear. Finally, the contact information of the primary researcher was available. The researcher was not contacted throughout the time the survey was open.

3.7 Interviews

In addition to the collected Q sorts, interviews were conducted to nuance some of the Q sorts. The sorting grid from said participants was presented to them in the interviews with participants. Then, the researcher would ask why certain statements were on the grid's furthest left, middle, and right sides. Additionally, the researcher would ask if the participants had trouble choosing between certain statements. Finally, the researcher asked the participants what they thought of the method and the platform's user-friendliness. These interview questions are detailed in Appendix F.

Moreover, it is also possible to combine the sorting process and the interview. Calendly (2023), a meeting scheduling software, was used in the recruitment process as an option to fill

out the survey in an (online) meeting together with the researcher. The interview and sorting process was held simultaneously in the case of two participants. The abovementioned questions were, in that case, asked throughout the sorting process. This resulted in a more natural conversation in which the researcher could act on the participant's remarks or facial expressions.

3.8 Exclusion

The study aims to identify and analyze the opinions and map the shared mindsets of municipal policy workers who work on energy poverty mitigation. By distributing an open online survey link, there is a risk of attracting unusable participants. In order to avoid using unsuitable data, the survey asked for the participant's title and in which municipality they work. Participants filling out something else were excluded.

3.9 Validity & Reliability

Q methodology is a holistic approach that measures the non-objective, which results in a clear overview of "value conflict and public policy controversy." (Davies, 2017) This study aims to expose the complex and different views humans can have on the energy crisis, and Dutch municipal energy policy makers' approaches to energy poverty in particular. To be explicitly clear, the results will not correct for external influences (such as political views, for example). The project shows the current views of the participants and groups them into groups with shared mindsets. It is, then, also not the aim of Q methodology to produce a dataset that can be quantified. Regardless, it is still possible and necessary to ensure validity and reliability. However, this may look slightly unconventional compared to other data-driven research projects.

Validity (it measures what it is supposed to measure) is tricky to ensure, as the method tests opinions, subjectivity, and preference. Any response to a statement is, therefore, valid. To ensure that responses are valid in the sense that the participants used the sorting grid as intended,

however, the study includes two highly similar statements in the survey (highlighted in yellow in Appendix D). If participants place these statements on their scale with a large difference between them (more than two), it may be concluded that their response is invalid.

Reliability (results are consistent) is ensured through a sample group. For both men and women, The study will survey two similar sizes groups to test reliability (depending on the number of responses, I will have two male and two female groups). If the two female groups show similar results and the two male groups show similar results as well, I deem the survey reliable. Both datasets can then be used for the analysis.

3.10 Analysis

Factor analysis uncovers the cohorts of like-minded municipal energy policy workers. The analysis has been done within *QMethod Software* (QMethod Software, 2023). Chapter 3.2 details the customization options the software offers.

3.10.1 Correlation Matrix

A correlation matrix shows each Q-sort correlation to the others. The matrix shows scores from -1 to 1, 1 being entirely the same input and -1 being the opposite. Pearson correlation was selected to create the matrix because the study aims to get insight into the mindsets towards gendered statements. In order to answer its research question(s), this correlation method (in contrast to the alternative, Spearman) is more sensitive toward outliers. Outliers are an expected outcome in the data of this Q study, as the Q-set contains subjective statements.

3.10.2 Factor extraction

From the abovementioned matrix, we draw factors. Factors are clustered Q sorts which have a high correlation score. Extraction factors can be done in two ways: through principal component analysis (PCA) or centroid factor analysis (CFA). PCA was selected due to three reasons. PCA and CFA generally give similar results (Webler et al., 2009). Commonly, Q studies without a hypothesis and with an explorative research objective select PCA (Webler et al., 2009).

Beforementioned Q studies with similar themes also use PCA in their analysis (Burns and Cheng, 2007; Frantzi et al., 2009; Kvakkestad et al., 2007). So, this study selected PCA.

A scree plot with eigenvalues will be created. To extract factors, Watts & Stenner (2005) explain that eigenvalues need to be over 1 to be significant and each factors must at least have two Q-sorts that most relate to it. The scree plot also shows a curve that can help: the so-called elbow. The elbow is determined by the point where the eigenvalues level off and the factors remaining to the left of that point are the ones to extract (Dmitrienko et al., 2007). The scree plot is commonly used to determine how many factors to extract (Frantzi et al., 2009; Kvakkestad et al., 2007; Swedeen, 2006; Woolley and McGinnis 2000).

3.10.3 Factor rotation

As this is a study for a master's thesis and [l]ess experienced Q users will usually find the varimax rotation sufficient," (Webler et al., 2009) this seemed the most logical rotation technique to use. Varimax rotation was also selected, because it is commonly used in combination with PCA (Watts & Stenner, 2005; Webler et al., 2009). It "[reveals] the range of viewpoints that are favoured by our participant group" in a reliable, mathematical way (Watts & Stenner, 2005). While other rotation methods, such as hand rotation, can account for, and isolate, smaller groups, varimax results are "straightforward and transparent." (Webler et al., 2009) Finally, beforementioned Q studies with similar themes also generally use varimax rotation (Burns and Cheng, 2007; Clarke, 2002; Frantzi et al., 2009; Kvakkestad et al., 2007; Swedeen, 2006; Woolley and McGinnis, 2000). In all cases, the "researcher needs to rely on his or her familiarity with the subject to make this judgment, and his or her skill and putting together a convincing explanation of the results." (Webler et al., 2009) Ultimately, this study identified two main groups, a more detailed rotation in which more niche groups can be identified was, therefore, not necessary.

3.10.4 Factor loading

Similar to the correlation matrix, the final step is to load the factors. Scores are, again, from -1 to 1, 1 being entirely the same input and -1 being the opposite. Every Q-sort is sorted into the factor they most corelate with, this is called flagging (Webler et al., 2009). *QMethod Software* flags each Q-sort automatically, but the researcher manually checked them all as well.

3.10.5 Interviews

Finally, three interviews were conducted. Two in which participants filled out the online survey with the researcher present and one where the researcher reflected on the participant's submission after completing the survey.

The researcher goes back and forth between the quantitative results from the data and the qualitative results from the interviews. Mindsets will be identified by combining the statistics and what has been said in the interviews. These are then defined by a short, precise and recognizable so-called *narrative* (Watts, & Stenner, 2012). Defining, common quotes from interviewees can be included in the narratives, if necessary. From reading this short text, it should be clear what this perspective entails.

In addition to the narratives, consensus and salient statements are presented, as even though the Q method will result in mindsets, there will most likely be overlapping opinions as well. Additionally, the most significant differences between the mindsets are highlighted as well.

4 Research results

The survey resulted in 46 submissions (Q sorts). After exclusion, 43 submissions were used for the analysis. Two policy workers at the provincial level and a submission by a non-policy worker were excluded. Due to a technical error, the first 11 submissions missed demographic questions 3-8 (Appendix E).

Figure 6
Gender distribution of participants

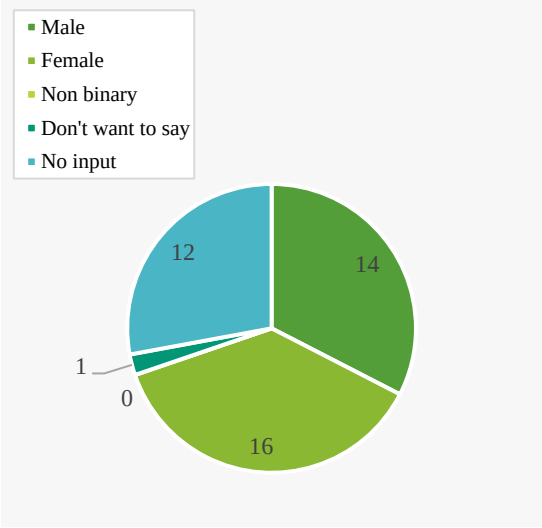
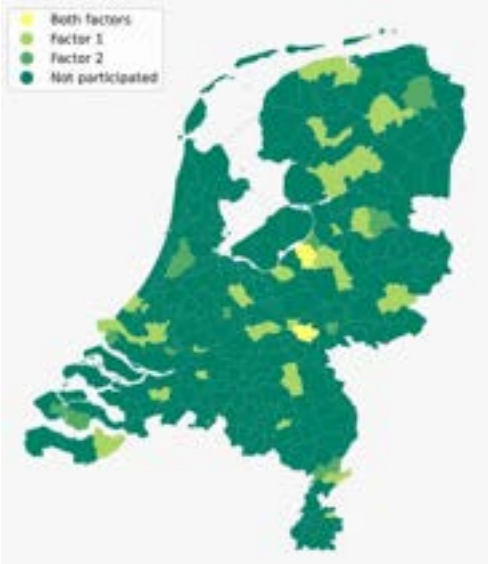


Figure 6 shows the gender distribution of the final data set. The education level was divided: 13 (~30%) bachelor-level, 18 (~42%) master, and 12 (~28%) no input. All participants were born in the Netherlands. This does not account for the missed input from the technical error. Among the participants, there were 14 (~33%) 22-34 year-olds, 11 (~26%) 35-44 year-olds, 4 (~9%) 45-54 year-olds, 1 (~2%) 55-64 year-old, and 13 (~30%) submissions with no input. Finally, from all participants, 21 agreed to be approached for a reflection interview with the researcher.

All provinces except for Flevoland were represented in the study. Figure 7 shows the geographic reach of the study, marking municipalities that participated. The Municipality of Nunspeet and Overbetuwe are the only double submissions; two policy workers from these municipalities participated in the study. Figure 7 also maps which municipalities are what factor. Interestingly, Overbetuwe and Nunspeet both have a participant from each factor.

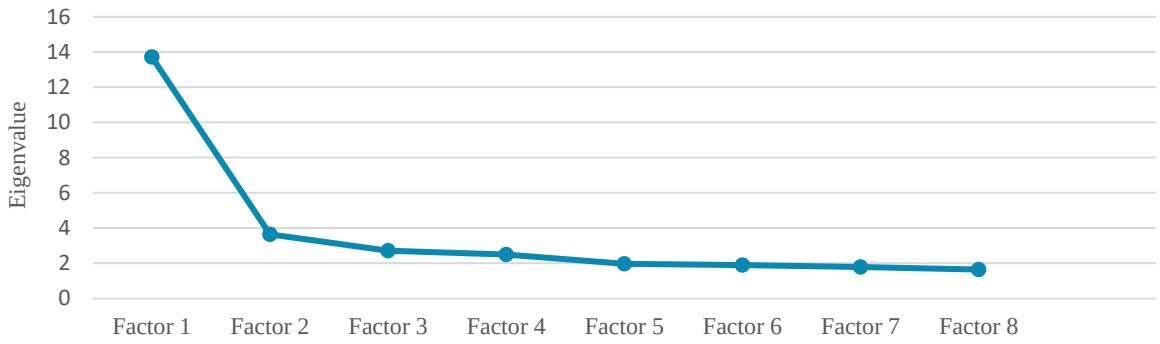
Figure 7
Geographic distribution participants & factors across municipalities



4.1 Principal component analysis & interpretation

Appendix G shows the entire correlation matrix. The scree plot (Figure 8) after PCA shows an elbow at factor 2, so the analysis continued with two factors.

Figure 8
Scree plot



The 43 Q sorts were then compared to both factors (factor loading) and given a correlation score between -1 and 1, -1 being the complete opposite and 1 being a perfect match. In other words, all submissions were checked whether they fit better in factor 1 or 2.

4.2 Factors

This section summarizes the factors' demographics (Table 4), distinguishing and consensus statements, and incorporates input from the interviews (transcripts in Appendix F) to create factor narratives. F1 and F1 contain 29 and 14 participants, respectively. Noticeable from Table 4 is that F1 has more female and master-educated policy workers. In the Netherlands, up until recently, you needed a university degree (WO) to become a policy worker. Later, due to budget cuts, the position had broader acceptability (HBO and WO). Additionally, it is expected that older (medior and senior) positions are allocated for strategic and complex issues such as mitigating energy poverty.

Table 4
Demographics per factor, N=43

	Age *(interval in years)*				***Gender***			***Nationality***	***Level of education***	
	22-34	*35-44*	*45-54*	*55-64*	*Male*	*Female*	*Rather not say*	*Dutch*	*Bachelor*	*Master*
F1	8	8	3	1	7	13	0	20	5	15
F2	6	3	1	0	7	3	1	11	8	3

N.B. Due to the technical error, not all Q sorts have demographic information.
N.B. Answers not depicted in the table (such as "non-binary") have not been selected by participants.

4.2.1 Factor one (F1): Institution-focused

Factor 1 (F1), the largest group is *institution-focused.* F1 shows a tendency towards a more non-municipal responsibility, favouring statements focused on responsibilities for housing corporations and the national government, while maintaining the energy transition as a goal.

Statement 16 (*Housing corporations and private landlords should carry the responsibility of tackling energy poverty by making their units more sustainable*) and 10 (*Housing corporations and private landlords should be motivated to improve sustainability through the rent system: in which a lower level of sustainability will result in lower rent or rent freezing*) ended up in most characteristic (Table 5). A sentiment expressed in an interview coincides with this:

> "Housing corporations are on the ball. Yes, I think it is also in their own interest to do so. We, as homeowners, have a responsibility and housing corporations are the owners of rental properties, so they share that responsibility." Translation from interview with participant D554.

Additionally, statement 5 (*The national government should substantially adopt energy poverty as part of the national energy transition plan, which makes it easier to realize policy solutions for energy poverty*) points to the responsibilities of institutions as well.

Table 5
Characteristic statements, factor 1

No	*Statement*
16	Housing corporations and private landlords should carry the responsibility of tackling energy poverty by making their units more sustainable.
5	The national government should substantially adopt energy poverty as part of the national energy transition plan, which makes it easier to realize policy solutions for energy poverty.
10	Housing corporations and private landlords should be motivated to improve sustainability through the rent system: in which a lower level of sustainability will result in lower rent or rent freezing.
9	People with a lower income should receive additional support to participate in the energy transition.
20	Solutions for energy poverty should coincide with solutions to other social issues.

In the same realm, statement 7 (*Policy workers/civil servants should be a direct representation of their constituents in order to produce inclusive energy poverty solutions*) ended up in F1's most uncharacteristic statements (Table 6), as this should not make a difference if every institution correctly carries out their responsibilities.

Table 6
Uncharacteristic statements, factor 1

No	*Statement*
31	The participation law should be expanded to include and represent all citizens in policymaking.
28	Energy data should be acquired and researched from a gender and ethnic perspective, instead of only income, in order to achieve the most inclusive energy poverty solutions.
7	Policy workers/civil servants should be a direct representation of their constituents in order to produce inclusive energy poverty solutions.
22	Energy poverty should be seen as an individual experience, not a household-shared one.
26	Energy coaches should play a smaller part in energy poverty solutions.

4.2.2 Factor two (F2): Explorers

A smaller group is the *explorers*. This group is prone to statements about further defining and researching energy poverty, press the importance of the local perspective, and disagree with a sole financial approach to energy poverty. Statements about sole financial approaches to energy poverty (statement 13 and 8) are uncharacteristic for factor 2. Additionally, statement 25 (*Energy poverty and insulation poverty should be seen as the same issue*) is uncharacteristic for F2.

Statement 19 (*Energy poverty should be defined as more than just not being able to pay for your energy bill*) and 21 (*Energy-poor people should be questioned about their experience, to better understand what it means to be energy poor*) are part of F's 5 most characteristic statements. An F2 interviewee expressed that energy poverty is:

> "really a huge problem and while there is a tendency to see the energy transition as only a technical problem. Rightly so, but it is also a big social challenge … In December, we amended the energy policy by the city council in which energy poverty is defined as one of the spearheads. Like, that is what we as municipality simply deem important; that we do what we can to prevent the gap between poor and rich from widening." Translation from interview with participant AZ2Q.

Statement 6 (*Municipalities should be able to increase their capacity to tackle energy poverty*) is one of the most characteristic statements, as well.

Table 7
Characteristic statements, factor 2

No	*Statement*
6	Municipalities should be able to increase their capacity to tackle energy poverty.
19	Energy poverty should be defined as more than just not being able to pay for your energy bill.
21	Energy-poor people should be questioned about their experience, to better understand what it means to be energy poor.
20	Solutions for energy poverty should coincide with solutions to other social issues.
16	Housing corporations and private landlords should carry the responsibility of tackling energy poverty by making their units more sustainable.

Table 8
Uncharacteristic statements, factor 2

No	*Statement*
13	The national compensation policy should be based on income.
25	Energy poverty and insulation poverty should be seen as the same issue.
26	Energy coaches should play a smaller part in energy poverty solutions.
8	Tackling poverty by increasing the minimum wage should automatically tackle energy poverty.
7	Policy workers/civil servants should be a direct representation of their constituents (age, gender, race, class) in order to produce inclusive energy poverty solutions.

4.3 Consensus between F1 & F2

Both factors have statement 20 (*Solutions for energy poverty should coincide with solutions to other social issues*) as their most characteristic.

F1 and F2 also agree on the implementation of energy coaches. Statement 26 (*Energy coaches should play a smaller part in energy poverty solutions.*) ended up in both of their most uncharacteristic choices. The same goes for statement 7 (*Policy workers/civil servants should be a direct representation of their constituents (age, gender, race, class) in order to produce inclusive energy poverty solutions*), which ended up in most uncharacteristic in both factors as well.

Finally, the groups share statement 16 (*Housing corporations and private landlords should carry the responsibility of tackling energy poverty by making their units more sustainable*) in their most characteristic statements.

4.4 Gender statements

This study used the analysis of energy poverty through the gender lens as 1) a way to emphasize the complexity and interconnected causes of energy poverty in the Netherlands and 2) a tool to measure whether this complexity has a space in the municipal policy cycle. The tool is made with the use of 8 gender statements (Table 9), as explained in Chapter 3.4.

F1 has one gender statement in their most characteristic statements (statement 20). And F2 has three gender statements (19, 21, and 20) in their most characteristic statements (Table 7). Their consensus gender statement is statement 20 (*Solutions for energy poverty should coincide with solutions to other social issues*).

F1 also has three gender statements in their most uncharacteristic. Statement 28 (*Energy data should be acquired and researched from a gender and ethnic perspective, instead of only income, in order to achieve the most inclusive energy poverty solutions*), 7 (*Policy workers/civil servants should be a direct representation of their constituents (age, gender, race, class) in*

order to produce inclusive energy poverty solutions), and 22 (*Energy poverty should be seen as an individual experience, not a household-shared one*).

Table 9
Gender statements

No	*Statement*
7	Policy workers/civil servants should be a direct representation of their constituents (age, gender, race, class) in order to produce inclusive energy poverty solutions.
19	Energy poverty should be defined as more than just not being able to pay for your energy bill.
20	Solutions for energy poverty should coincide with solutions to other social issues.
21	Energy-poor people should be questioned about their experience, to better understand what it means to be energy poor.
22	Energy poverty should be seen as an individual experience, not a household-shared one.
23	Energy poverty increases existing inequalities.
27	Smart meters are not detailed enough, energy use should be tracked on an individual basis for inclusive energy poverty solutions.
28	Energy data should be acquired and researched from a gender and ethnic perspective, instead of only income, in order to achieve the most inclusive energy poverty solutions.

5 Discussion

5.1 Reflection

Based on the methodology used, two clear groups within municipal policy workers who work on energy poverty mitigation can be identified: the *institution-focused* (F1) and *explorers* (F2). The *institution-focused* show a tendency towards a more non-municipal responsibility, favouring statements focused on responsibilities for housing corporations and the national government, while maintaining the energy transition as a goal. And the *explorers* are prone to statements about further defining and researching energy poverty, press the importance of the local perspective, and disagree with a sole financial approach to energy poverty.

Even though there are specific differences between the two factors, the consensus statements are somewhat surprising. Due to the popularity of energy coaches (Pelgrim, 2023), it makes sense that all mindsets are positive toward this energy poverty solution (statement 26). Interesting, however, is the consensus on statement 20 (*Solutions for energy poverty should coincide with solutions to other social issues*). This seems a uniquely municipal perspective on energy poverty, while the SPUK budget does not explicitly require mitigation to coincide with other issues in the municipality.

Additionally, F2 disagrees with statements about financial solutions and technical definitions. Statements 13 and 8 are uncharacteristic for factor 2. These are both focused on financial compensation based on financial means. Additionally, statement 25 (*Energy poverty and insulation poverty should be seen as the same issue*) is uncharacteristic for F2. This statement narrows the definition of energy poverty down to housing quality. This stands out as an uncharacteristic statement for F2, as it means that they deem energy poverty more complex than that; a gender-just approach.

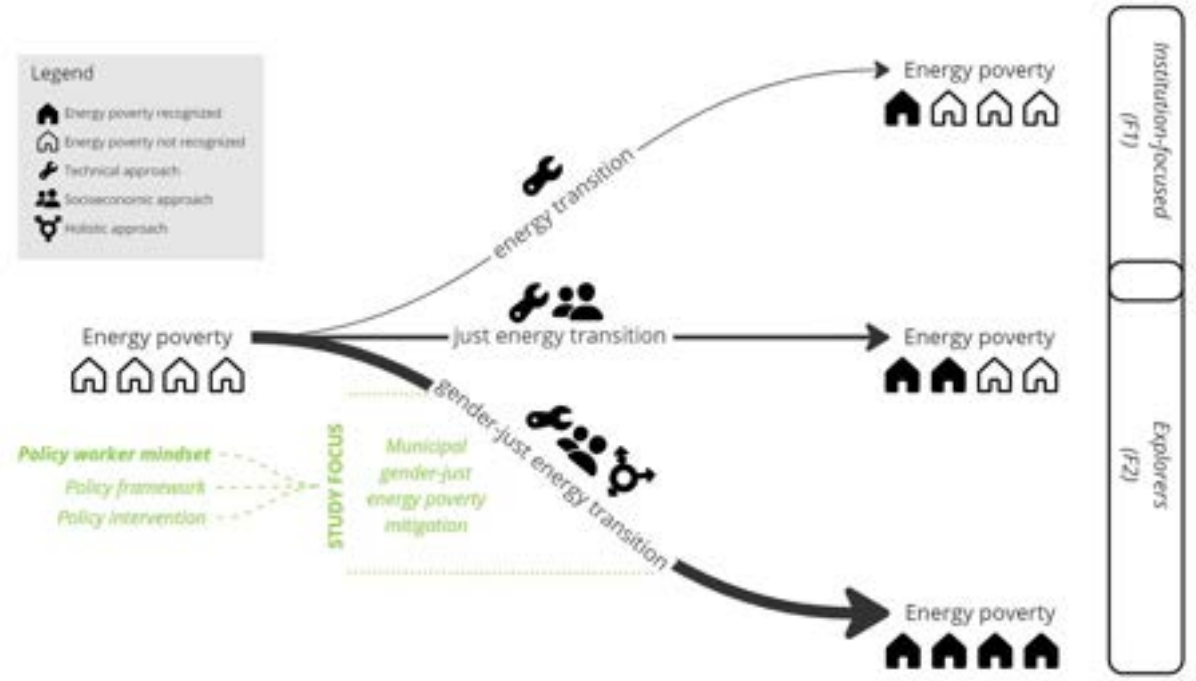
Although the gender statements initially did not have explicit ratings from firmer to milder types, the statements did receive such a response in the interviews with all interviewed

participants. Especially statement 22 (*Energy poverty should be seen as an individual experience, not a household-shared one*) and 28 (*Energy data should be acquired and researched from a gender and ethnic perspective, instead of only income, in order to achieve the most inclusive energy poverty solutions*) attracted attention or caused confusion (Appendix F). Statement 22 and 28 are then, seemingly, rhetorically firmer. Promising is how gender statement 20 (*Solutions for energy poverty should coincide with solutions to other social issues*) is favoured by both factors. And, finally, statement 7 is in most uncharacteristic for both factors (*Policy workers/civil servants should be a direct representation of their constituents (age, gender, race, class) in order to produce inclusive energy poverty solutions*), and reflected on in interviews (Appendix F) as unnecessary. This is in line with in line with the consensus on Critical Mass Theory, that there is no tipping point of a certain group necessary to represent this group fairly in policy (Carroll 2001; Childs & Krook, 2006; Crowley 2004; Krook, 2015; Tremblay, 2006 and Yang et al., 2019).

Finally, what is apparent from the interviews is the existing awareness of decentralization due to multi-level governance. Interviewees from both factors mentioned the authority and responsibility with energy poverty mitigation Dutch municipalities carry (Appendix F). Both factors saw similar up and downsides to this: local knowledge and, at times, lack of capacity.

The factors, now placed on the conceptual model (Figure 9), contextualize the current state of Dutch municipal policy workers mitigation energy poverty. The smaller group, the *explorers* (F2), is moving towards a holistic, gender-just approach in which energy poverty is mitigated through interconnected interventions.

Figure 9
Conceptual model for energy poverty mitigation measures (Feenstra, 2021: Feenstra et al., 2021; Rademaekers et al. (2016), with factors added



N.B. The houses do not depict calculations of energy poverty, they are to illustrate effect.

5.2 Limitations

The research project, in its current form, has five identifiable limitations. First, the study aimed to draw conclusions based on gender (*Sub-research question 3: Do women produce more gender-just policy to mitigate energy poverty?*). Although the pool of participants (43) was technically enough to have statistically enough participants (20) for both women and men, in reality, more women participated in the study. Therefore, claims about gender cannot be made with statistical backing. Anecdotal evidence from the interviews (Appendix F) and literature research (Carroll 2001; Childs & Krook, 2006; Crowley 2004; Krook, 2015; Tremblay, 2006 and Yang et al., 2019), though, seems to point to the expected outcome that the gender makeup of policy makers does not affect the level of gender-just solutions. Consequently, sub-question 3 cannot be answered fully.

Regarding the P-set, recruitment might have missed part of the target population. The general post on LinkedIn received many views, from which a fraction was eligible to participate

in the study, which was expected. However, it can also be the case that policy workers who are not interested in the study choose not to participate. This means that their mindset has not been fairly depicted in the results. Targeted recruitment worked better, as professions could be checked beforehand. Additionally, the recruitment was, in part, done in collaboration with 75inQ, a predominantly female professional network. It could be the case that women are overrepresented in the results.

Another hurdle the study project faced is general expertise, which is to be expected in a Master's project. The statements must be formulated specifically for its desired P-set. Although careful desk research and interviews were conducted, points of view will always be missing. Participants had a chance to give feedback after completing their Q-sort. This feedback form noted that the provincial governance level, homeowners' perspectives, and legal possibilities to mitigate energy poverty were missing or represented unfairly. This method tests subjectivity, so it makes sense that participants can be surprised by statements they disagree with being represented in a study. In a follow-up or similar project, with more time, workshops might be held with the participants prior to taking the survey, to map out their thoughts in addition to the completed research in this study. Additionally, a slightly more detailed prompt at the beginning of the study can take away some of this confusion. However, from all submissions, this feedback is a low share.

Finally, the study does not include a non-binary or transgender perspective. Only one participant filled out the gender question with *Do not want to say*. None of the other participants filled out the gender question with anything other than man or woman. This was expected in a smaller pool of participants, but it does mean that there is no possibility to reflect on a possible non-binary transgender experience.

5.3 Future research

As 2023 is the year in which the first SPUK budget spending must be completed by municipalities (Kuijpers, 2021), future research into the policy aimed at mitigating energy poverty from the questioned municipalities would be very insightful. This way, the implemented solutions can be compared to the mindsets. From this, it may become visible what sort of mindsets result in what sort of solutions. Moreover, it could then be assessed which, if any, of the mindsets seem more affluent in mitigating energy poverty.

To recruit a complete P-set in similar future projects, the researcher might work with mandatory participation through tighter collaboration with a select few municipalities (or other organizations), for example. With mandatory participation of the study's target population, the factors are expected to be more accurate. Through collaboration, the participants could also participate in workshops, think tanks, or round tables about the subject, to create a more extensive Q-set.

Moreover, it is encouraged to use the selected method for this study in different professions within the energy sector. As beforementioned, the project is exploratory for municipal policy workers, so the results will not be transferable to other sectors. However, the conducted method can be transferred and re-used in a different context. For example, politicians, policymakers, and energy suppliers can also be tested on their mindsets to draw a completer picture. A multidisciplinary set of results combined with an overview of the implemented solutions might then be used to find bottlenecks or missed opportunities in the multi-level governance approach to mitigate energy poverty in the Netherlands.

6 Conclusions & recommendations

The main research question of this study is: *What are the core perspectives of Dutch energy policy workers on tackling energy poverty on the municipal level in the context of a gender-just transition?* There seem to be two clear groups within municipal policy workers who work on energy poverty mitigation: *institution-focused* (F1) and *explorers* (F2). The *institution-focused* show a tendency towards a more non-municipal responsibility, favouring statements focused on responsibilities for housing corporations and the national government, while maintaining the energy transition as a goal. And the *explorers* are prone to statements about further defining and researching energy poverty, press the importance of the local perspective, and disagree with a sole financial approach to energy poverty.

These groups share the perspective that energy coaches are a good solution (although not to be further expanded) and that energy poverty solutions should simultaneously tackle other social issues.

To answer sub-research question 1 (*What are the main mindsets of municipal energy poverty solutions in the Netherlands?)* and its follow-up question *(To what extent are these policies gender-just?* The existing Dutch solutions to mitigate energy poverty are broad. They also differ per municipality, which can lead to further inequality. These policies do not seem to reflect the academic discourse on the just transition.

Factor 2 does, however, agree with some of the academic findings on gender-just policy and the gender-just transition. This is an exciting finding and an answer to research question 2 (*To what extent is gender present in the mindsets of Dutch policy workers when tackling energy poverty on the municipal level?).*

Although the data cannot quantitatively support this, sub-research question 3 (*Do Dutch female policy workers tackling energy poverty on the municipal level display a more prevalent focus on gender?*) can be answered with the rough conclusion that the gender of Dutch

municipal policy workers working on energy poverty does not affect the level of gender-just policy they produce. The original Critical Mass Theory disputes this (Kanter, 1977), but modern consensus is that there is no tipping point at which a certain group gains influence, rather, the decision-making systems and participators themselves can realize influence (Childs & Krook, 2006; Krook, 2015; Tremblay, 2006 and Yang et al., 2019). Additionally, when discussing gender representation, in any sector, remain that "the assumption that women will enact gender aware (gender) policies actually places the burden for achieving gender equality on the single-woman-representative and takes away any responsibility from men." (Feenstra & Clancy, 2019)

This study provides insights and deepens the knowledge on Dutch policy workers at the municipal level on their mindsets regarding solutions to mitigate energy poverty. This study can inform future policies on more inclusive energy poverty mitigation measures. Long term, the study forms a foundation for further quantitative energy poverty research taking the mindset and perspectives of municipal policy workers as a research entity.

This study presents its recommendations in three parts, according to three disciplines; theoretical, methodological, and political/organizational.

6.1 Theoretical

- Following existing recommendations (Clancy et al., 2007), more in-depth data on individual energy use is necessary to understand energy poverty and its interconnections better, as this study was unable to include energy poverty data disaggregated to gender.
- Further research into how (municipal) policy workers acquire and apply information to formulate and implement policy can be helpful to better understand the effect of their subjectivity on their policy and identify subconscious exclusion.

6.2 Methodological

- Q methodology is a detailed and subjective tool to map mindsets in a certain group of people, so drafting statements requires meticulous preparation. Future research projects should spend more time drafting the Q-set; possibly with interviews and/or workshops.
- Achieving a statistically significant P-set can be challenging due to the time and focus necessary to participate in an (online) Q survey. Recruitment could be done in existing networks within the study subject, while paying attention not to exclude people.

6.3 Political/organizational

- Municipalities could be supplied with tools or data to better understand the complex identity of the energy poor—this can be achieved through workshops on the subject, distribution of fact sheets, or access to data tools.
- Municipalities may critically (re)assess the department under which energy poverty mitigation resides, as this can strongly influence *type of solutions* and *authority* (not necessarily supported quantitatively, but mentioned in all interviews).
- Based on mapped efforts (Chapter 2.4) and interviews 6CUB and AZ2Q (Appendix F), the national government could facilitate more communication and collaboration between municipalities.
- Based on literature research (Feenstra et al., 2021; Harmsen, 2022; Bouzarovski & Tirado Herrero, 2017) the interview with Hesselman (Appendix C), and interview D554 (Appendix F), the national government could formulate mandates for the allocated budget, so municipalities can create more focused and detailed long-term roadmaps.
- All layers of governance should break the silos in energy poverty mitigation; social, urban planning, housing, energy transition as a whole should be holistically approached in order to mitigate energy poverty.

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Appendix

Appendix A. Glossary

Gender

The World Health Organization (WHO) (2022) defines gender as a set of "characteristics of women, men, girls and boys that are socially constructed." They (WHO, 2022) include "norms, behaviours and roles associated with being a woman, man, girl or boy, as well as relationships with each other. It is also important to note that gender can intersect with other inequalities such as race, class, location, sexuality, and age (Addelston et al., 2007); George, 2019; Johnson et al., 2020; Phoenix and Pattynama, 2006).

Municipal policy worker

Any employee at a Dutch municipality that works on policy aimed at tackling energy poverty. This may be under any department (as this differs per municipality); economic affairs, poverty, environment, etc. This paper excludes the policymakers (the people making the final decision) and politicians (the people shaping the political agenda). This paper is interested in the perspective of the people realizing the policies aimed at mitigating energy poverty on the municipal level.

Appendix B. QMethod Software

While creating an only Q study in *QMethod Software*, the researcher can customize (Lutfallah & Buchanan, 2019):

- The amount of statements to be added;
- the shape of the sorting grid;
- whether the survey is accessible by an open link or by invitation via email;
- what prompt the participants reply to;
- what symbols the participants see in the initial Q sorting;
- whether participants see the number grading on the grid;
- the amount of steps prior to starting the survey;
- the addition of consent forms and/or other questions (open answer, Likert scales, multiple choice);
- the colours of the survey, and
- the addition and content of a "help" tab.

The software can, consequently, support with analyzing the data from the created Q study. The analysis functions the researcher can choose to apply in *QMethod Software* are (Lutfallah & Buchanan, 2019):

- the number of factors to analyse (2-7)
- the correlation type: Pearson, Kendall, or Spearman (Alberts & Ankenmann, 2001; Brown, 1996);
- Principal Component Analysis (PCA) or Centroid Extraction (CE);
- and the type of rotation: varimax, quartimax, promax, oblimin, or cluster (Ahmed et al., 2012; Barker, 2008; Brown, 1996);

The license also included a help desk (that replied within 12 hours) to support in the case of technical difficulties or general questions about the software.