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Planning for growth or degrowth in energy transitions – a case study of Gotland, Sweden

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ABSTRACT

There seem to be increased concern that planning for 'sustainable development' and 'green growth' will fail to hinder climate, environmental and social catastrophe. Degrowth scholars explore alternative trajectories for sustainability planning, focusing on radically reduced resource use by voluntary downshifting. This study contributes to the growing field of degrowth planning research. This case study of the Swedish island region Gotland, and the local energy transition project Austerland Energy (AE), use qualitative analysis of selected documents, and interviews with civil society and politicians, to explore alternative trajectories in planning for sustainable energy systems in a growth-oriented planning paradigm. The results show some preconditions for degrowth planning, such as abundant natural resources, close-knit communities and possibility for interconnected 'urban' – and 'eco-villages'. However, 'green growth' ultimately dominates, as sustainability is used for place-branding, behaviour change is seen as unlikely, and Gotland's energy transition seems to rely on 'techno-fixes'. The large share of part-time residents make Gotland depend on mainland transportation, and cement, agriculture and tourism industries further complicate Gotland's transition. However, the degrowth-aligning results highlight potential for planners to enhance transformative planning, with focus on localized energy – and food systems, and better conditions for full-time dwelling on Gotland.

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Introduction

Three decades after the Intergovernmental Panel on Climate Change (IPCC) published their first report with scientific evidence of human caused climate change (IPCC 1992), nations worldwide are not nearly on track to set back global heating and environmental destruction (IEA 2024; IPCC 2022a; Stoddard et al. 2021). With the energy sector identified as the largest generator of global greenhouse gas emissions (IPCC 2022a, 617),

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transitioning to fossil free, renewable energy and terminating the extraction and burning of fossil fuels is necessary to lower emissions and reduce the speed of global warming (IEA 2022; IPCC 2022a, 615). Adding renewables has not yet reduced use of fossil energy (IEA 2024; Stoddard et al. 2021), and the IPCC (2022b) stresses that successfully reducing emissions will depend on lowered demand in emission-intense economies, entailing for example less consumption and changed travel habits and diets.

Planning is typically used to further desired societal development. In the 1900s, 'strategic planning' emerged and shifted focus from planning as mainly public-led, to introduce stakeholder negotiations and short-term action plans (Albrechts 2004). This development is enhanced by 'soft-' planning (Cavaco et al. 2023), characterized by a mix of market values (Ferreira and Von Schönfeld 2020; Xue 2022) and planning for specific issues such as 'sustainable development' (Krähmer 2021). Planning is also increasingly open for private initiatives (Berglund-Snodgrass and Mukhtar-Landgren 2020) and scalar overlaps (Cavaco et al. 2023). Meanwhile, a growing number of scholars criticize contemporary planning for being techno-capitalist, growth-oriented and for escalating social inequality and environmental degradation (Hall and Davis 2021; Hulme 2019; Krähmer 2021; Savini, Ferreira, and von Schönfeld 2022; Shapiro and McNeish 2021b). They call for a radical transformation away from the idea of eternal growth (Barca 2020; D'Alisa, Demaria, and Kallis 2014; Hickel and Kallis 2020) and 'technical' – or 'green fixes' (Holgersen and Malm 2015).

In later decades, degrowth has emerged as a counter-narrative to the dominating growth-paradigm in society at large. Starting as an activist movement, degrowth is now established in both politics and academia (D'Alisa, Demaria, and Kallis 2014; Demaria et al. 2013; Koch 2024; Parrique 2019). Degrowth scholars suggest a radical societal transformation, with rapid reduction in resource throughput for human consumption to stay within planetary boundaries and argue that a degrowth society could facilitate both ecological and social sustainability by prioritizing environmental and human wellbeing before economic profit (D'Alisa, Demaria, and Kallis 2014; Demaria et al. 2013; Dengler and Seebacher 2019; Kallis 2018; Kothari, Demaria, and Acosta 2014). The concept specifically calls for democracy, downshifting and global solidarity in terms of wealth and resource redistribution (Dengler and Seebacher 2019).

Despite the relative novelty of degrowth as an academic concept, some scholars have explored degrowth in energy transitions (Alarcón Ferrari and Chartier 2018; Alexander and Yacoumis 2018; Kunze and Becker 2015; Tsagkari, Roca, and Kallis 2021). In addition, degrowth scholars are increasingly calling for an integration of urban and regional planning with degrowth research, to increase spatial understanding, concretize and find strategies to facilitate necessary societal transitions (Ferreira and Von Schönfeld 2020; Kaika et al. 2023; Koch 2024; Krähmer 2018; Savini 2024; Xue 2014, 2022). They see a need for deeper understanding of if and how planning processes can engage with degrowth principles, in particular regarding planning for an energy transition without unwanted rebound effects, segregation, or the risk of detached energy communities stuck at pilot-stage. At large, degrowth scholars seem to agree on abandoning the hitherto one-sided focus on eco-villages, but also that there is a general lack of knowledge of other alternatives (Ferreira and Von Schönfeld 2020; Kaika et al. 2023; Krähmer 2018; Savini 2024; Schmelzer and Hofferberth 2023; Xue 2014, 2022).

This article contributes to the growing field of planning for degrowth and sustainable energy systems. By doing a single case, multiple unit study of energy transition planning on the Swedish island region Gotland, and the local energy transition project Austerland Energy (AE) I explore the presence and potential for alternative trajectories in energy transition planning, asking if and how degrowth can be furthered in a growth-focused planning paradigm.

While studies thus far have focused on small-scale pilot projects (Kunze and Becker 2015; Tsagkari, Roca, and Kallis 2021), or energy degrowth at city-scale (Alarcón Ferrari and Chartier 2018; Krähmer 2021), this study focuses on comprehensive energy transition in an island region. Remote islands are identified by the European Union as ideal places for pilot-studies of sustainable energy transitions (Skjølsvold, Ryghaug, and Throndsen 2020), an assertion echoed by Tsagkari, Roca, and Kallis (2021) in a study of small islands in Spain and Greece. Gotland differs from these cases as a politically administered region, meaning, besides being larger in size and population, it is expected to provide services like a fully equipped hospital, schools, housing and employment. Within a growth-paradigm, Gotland should also attract business, capital and (the right) people. Gotland's urban centre Visby and the many rural dwellings places it in the intersection of the rural and urban, making a suitable case for understanding degrowth in a place which is neither eco-village nor 'urban village' (Krähmer 2018; Xue 2014, 2018, 2022). As strategic energy planning is often characterized by 'soft planning' across scale, this study combines national and regional strategies, as well as the local AE case unit.

I begin by presenting my theoretical framework of planning and degrowth, focusing on describing strategic, or 'soft' energy transition planning and its critiques, and the counter-narrative of planning for degrowth. I then describe my methods and case units before reporting my results and finish with a concluding discussion of my material in relation to the theories.

Theory

Planning for 'green growth' and sustainable development

Traditional statutory planning has gradually opened up for non-public planning and for multiple kinds of actors to be part of planning processes. The idea is that wicked problems like climate change and energy transition need solutions 'outside the box', where the institutional inertia of planning is challenged by creative private actors. This era has been conceptualized for example as 'strategic-', 'soft-', or 'testbed planning' (Albrechts 2004; Berglund-Snodgrass and Mukhtar-Landgren 2020; Cavaco et al. 2023), which have in common that processes go beyond statutory planning, become less predictable, and, some would argue, less democratic. 'Soft planning', in particular, has been described as a depoliticization of planning, where 'techno-scientific legitimation' of development such as growth and sustainability are framed as the only way forward (Cavaco et al. 2023, 14).

While a mix of private and public planning initiatives is not necessarily an issue in itself, planning for sustainable development is increasingly accused of prioritizing economic growth, with an assumption that growth automatically creates social wellbeing and environmental benefits (Krähmer 2021; Wanner 2015).

> The link between growth and planning is so strong today that it is hardly possible for planners, governments, and their constituencies to question economic growth as the *sine qua non* condition of urban well-being. (emphasis in original) (Savini, Ferreira, and von Schönfeld 2022, 5)

A study of ten Swedish municipal budgets showed that while Swedish municipalities have planning monopoly and extensive financial autonomy, the stronger 'green growth'-emphasis of national politics tend to influence local development (Hermelin and Andersson 2018). This 'blurring' of administrative scale, or development of 'soft spaces', materialize as an overlap of actors and interests, typically exemplified with EU policy or global climate agreements, where the promise of international collaboration and voluntary accountability 'paradoxically […] enable both neoliberal advancements and promising planning experimentation and disruption' (Cavaco et al. 2023, 17). This narrative is also accused of indicating that no radical changes are necessary to mitigate climate change:

> Sustainable development and green growth approaches assume that the current capitalist, globalized socio-economic system, oriented towards accumulation and growth, can and should be reproduced and our current lifestyles should be maintained, achieving ecological sustainability by changing only a few subsystems – mainly on a technological (e.g. renewable energies) and individual behavioural level (e.g. 'don't use plastic bottles!'). (Krähmer 2021, 1274)

Furthermore, researchers have observed how the 'green growth'-narrative, closely interlinked with planning for sustainable development, conceal the negative consequences of striving for eternal economic growth (Wanner 2015), since absolute decoupling of economic growth from environmental degradation and resource depletion is much likely impossible (Hickel and Kallis 2020). Others argue that climate change mitigation and environmental protection is weighed against economic benefit, where economic sustainability will always triumph social and ecological (Hall and Davis 2021; Xue 2022). This means planning for sustainable development or 'green growth' often revert to enhancing market competition rather than social and ecological wellbeing, causing gentrification, segregation and environmental degradation (Ferreira and Von Schönfeld 2020; Tasan-Kok and Baeten 2012; Xue 2022). Furthermore, focus on economic growth often result in sustainability projects being used for place-branding, or:

> enhance[ing] place's ability to compete for and attract investments. To do so, planners have nurtured private actors' profit-seeking aspirations while endorsing private-led experiments in all sectors of city governance. (Savini, Ferreira, and von Schönfeld 2022, 5)

While transitioning from fossil – to renewable energy is at the core of climate change mitigation (IEA 2024), these technologies are also increasingly problematized. As Hulme (2019) writes, failing to account for social inequality in the era of climate crisis politics risk: 'mak[ing] the world a worse place even if powered by zero-carbon energy' (Hulme 2019, 24). Scholars warn of social and environmental degradation and violence caused by large-scale renewable energy and 'smart technology'-rollout. Vulnerable groups are either dispossessed and deprived of their livelihood, or exploited in search for critical metals and minerals, to benefit the economic and political elite (Dunlap 2017; Jasanoff and Simmet 2021; Shapiro and McNeish 2021a; Sovacool et al. 2021). A geological report have also found that global reserves of metals and minerals are not enough for 'clean'

technologies to electrify societies as they are organized today (Michaux 2021), further motivating efficiency and sufficiency measures (IPCC 2022b). This calls for a new era in planning, where energy transition and climate change mitigation is not left in the hands of large, tech-corporations, but work with behaviour – and relational changes more intently.

In summary, planning for sustainability and energy transition is increasingly happening in 'soft spaces' and non-public planning processes. However, this depoliticization of planning risk furthering techno-optimism and 'green growth', which privilege powerful actors' economic interests rather than necessary transformations. 'Green growth' is also mainly seen as a market-asset, where sustainability projects are used for place-branding.

Degrowth - a counter narrative

Degrowth is an attempt to provide an alternative to the 'master narrative' of growth (Barca 2020) and offers a holistic reorganizing of societies to avoid exceeding planetary boundaries and reproducing structural violence (Akbulut 2021; D'Alisa, Demaria, and Kallis 2014; Demaria et al. 2013; Kallis 2018). The movement strive for what they see as a more prosperous way of living, including voluntary downshifting, reduced wage labour and consumption, and more free time for social, creative activities and rest (Demaria et al. 2013; Krähmer 2021). It builds on principles of 'care, sharing, autonomy, solidarity, justice, democracy and conviviality' (Akbulut 2021, 99) and should enable global redistribution of wealth as decentralized economies and reduced resource use in high-consuming countries could, with careful planning, enable better living conditions in countries currently suffering from structural inequality (Demaria et al. 2013; Dengler and Seebacher 2019). Economically, degrowth largely promotes decentralization, cooperatives and democratically governed, local economic systems, where profit is reinvested for social and environmental flourishing (Jackson 2014).

Planning for degrowth

Degrowth scholars have lately attempted to integrate planning and degrowth, focusing on understanding spatial interconnectedness, furthering energy self-sufficiency, efficient housing, minimizing transportation and providing flourishing community and life close to nature. While early degrowth saw eco-villages as the ideal solution, later scholars have acknowledged the need for both eco-, and 'urban villages', as urban environments provide much of the social and cultural values embraced by degrowth research (Ferreira and Von Schönfeld 2020; Kaika et al. 2023; Koch 2024; Krähmer 2018; Savini 2024; Xue 2014, 2018, 2022). Degrowth scholars thus ask planners to contribute to knowledge of how to balance both urban and rural dwellings in a just and democratic manner (Ferreira and Von Schönfeld 2020; Krähmer 2018; Xue 2022).

In a political but research-based opinion piece, Schmelzer and Hofferberth (2023, 143) stresses that 'Degrowth does not have to reinvent the wheel. It can build on ongoing, productive debates about ecological planning, participatory economies, and economic democracy'. The authors (2023, 144), suggests degrowth planners should promote selective flourishing and downscaling of production, democratizing the economy so privatized capital is invested in social and ecological wellbeing, planning for social

provisioning and equality, technological development that is completely needs-based, and raw materials for technology to be recycled. Finally, rectifying the global wealth-, and resource inequality, making sure that resources are distributed evenly and that historic ills are compensated for. While these recommendations could be difficult to pair with conventional economic growth, they align well with the need of wicked problem management for 'thinking outside the box'. Khmara and Kronenberg (2023) have shown possibility of drawing from conventional urban economics in order to operationalize degrowth in an urban context. Similarly, planning could potentially further degrowth development while operating within conventional systems.

Degrowth and energy

Energy transitions have been studied by degrowth scholars to some extent and is mentioned repeatedly in literature on degrowth and planning as key to attaining degrowth societies. Kunze and Becker (2015) find it a misconception that shifting from fossil- to renewable energy would automatically make the energy sector democratic and less growth-oriented. Instead, while they observe some realization of degrowth-ideology in their case studies, initiatives are ultimately consumed by profit maximization. On the contrary, degrowth focus on planning for energy efficiency and sufficiency, and more dense, urbanized areas, short distances and accessible public- and shared transportation. On the other hand, scholars reiterate the benefits of small communities, a mix of residential housing and agriculture, and space for renewable energy infrastructure such as wind and solar (Krähmer 2018; Kunze and Becker 2015; Xue 2014, 2018, 2022), thus, promoting coexistence of eco- and ' urban villages'.

In a study of energy transition on small islands, Tsagkari, Roca, and Kallis (2021) suggests four core focuses for degrowth in energy systems. In short, energy systems in a degrowth society should lower demand to enable self-sufficiency and re-localization using local, renewable resources (human and material). Such small-scale energy systems should also increase democracy, as local populations own, manage and make decisions regarding their own energy systems. Finally, degrowth energy systems should re-vitalise local economies, by reinvesting profit in the local community (Tsagkari, Roca, and Kallis 2021).

In summary, planning for degrowth should focus on radical decrease in energy demand and resource throughput, where energy systems strive for self-sufficiency using local renewable resources. Degrowth planning should also promote a holistic societal transformation, to enhance eco-social well-being and local and circular economies. While degrowth could be interpreted as opposing growth-focused planning trends, the collaborative and creative nature of the concept could potentially align well with public/private organizing.

Methodology

This is a qualitative study of Gotland as a site for energy transition, designed as a single case with two units of analysis – Gotland and the local energy project Austerland Energy (AE) in Östergarnslandet. For an explorative study, including multiple case units within one geography provides a broad understanding, highlighting similarities as well as differences, where in this case Gotland exemplifies a more 'official' depiction and AE an

'alternative'. The case is mainly instrumental and studied to understand a general issue – energy transition – but has some intrinsic qualities (Creswell and Poth 2023), such as the former pilot mission, remoteness, 'soft planning' and the large emissions from industry and mainland transportation, making Gotland and AE stand out as both suitable and challenged in transitioning.

Cases

Gotland

Gotland, located in the Baltic Sea, is the only Swedish region consisting entirely of remote islands and the only place where the region and municipality covers the same geographic area. It is the 39th largest municipality (of 290), but the smallest region in terms of population (Region Gotland 2021). Gotland has the highest per-capita greenhouse gas emissions in Sweden, primarily due to the cement- and agricultural industry, high car dependency, and daily ferry- and aviation departures for commuting, tourism and goods transportation (KUU & Ramböll 2018; Regionfakta 2022, 2023). In 2024, Gotland had 61,029 permanent residents (Regionfakta 2024) and 900 000 yearly visitors (Region Gotland 2024). The County Administrative Board writes that 'a significant part of Gotland's permanent housing is not used all year around' (Evaldsson 2024), indicating that many home owners on Gotland (beyond the 61,029) split their time between the island and the mainland.

Region Gotland has a target of a 100% renewable energy system by 2040, with net-zero emissions by 2045. A carbon budget for Gotland (KUU & Ramböll 2018) states that emissions reductions in close-time cannot depend on technological innovation, but must happen through efficiency- and sufficiency measures. In the years 2019–2023, Gotland was the pilot region for Sweden's energy transition. After its termination, the region emphasized that energy transition is still prioritized (Regionstyrelsen Region Gotland 2023a).

Austerland Energi/Östergarnslandet

AE was initiated by the local corporation Nygarn Utveckling AB, an actor known for fostering local engagement and development and was granted funding by the Swedish Energy Agency as part of the energy pilot mission (Energimyndigheten 2021; Larsson 2023). Östergarnslandet, the geographical site for the project, consist of five parishes (Gotland has 92) and is located on the east-coast. Two thirds of 3700 households are inhabited by part-time residents (Larsson 2023), indicating that a majority of home owners in Östergarnslandet regularly commute to the mainland or Visby.

AE set out to be a self-proclaimed, 'local manifestation of the Paris Agreement' (Larsson 2023, 10), thus aiming for a transition commensurable to what is necessary to meet the 1.5 degrees target. The feasibility study included floating solar panels on an irrigation dam, combined with wind power, and battery – and hydrogen storage. The project planned for an energy community with part – and full-time residents in Östergarnslandet as members (Larsson 2023). Since the funding was directed to smart technology for reducing transport emissions (Energimyndigheten 2021), the project emphasized fossil-free vehicles and other technology to lower climate impact from households and industry in the area. The original plan was proved economically and technologically infeasible (Larsson 2023), but a community-owned solar PV plant, using more affordable technology, is now established in another of the five parishes where grid-capacity is better (SAEEF 2024).

Material

Interviews

For Gotland, I used purposeful sampling with maximum variation (Creswell and Poth 2023), targeting politicians in high positions across the right-left spectrum. The chosen respondents are one Social Democrat (Politician 1), one Right/Conservative (Politician 2) and one Centre (politician 3, whom is also working as a strategist for the island's energy transition). The interviews capture the 'official' Gotlandic identity and give a comprehensive political picture of Gotland. The interview with Politician 1 was conducted in January 2024, and the other two in May and June 2024. The interviews lasted 45–90 min.

For the AE unit, purposeful sampling (Creswell and Poth 2023) targeted informants with an interest in joining the energy community, thus with some existing knowledge of energy transition to enable in-depth discussions. I also strived for maximum variation (Creswell and Poth 2023) to ensure representation of both men and women and permanent and part-time residents. Seven interviews were conducted in the summer and early autumn of 2023, each lasting 45–135 min.

All interviews were semi-structured, thus largely open but guided by some main topics (Hennink, Hutter, and Bailey 2020). Politicians were asked to reflect on the ongoing energy transition, what societal changes they anticipated, the political climate, Gotland in relation to other regions and the state, responsible actors and their own worries and hopes for the energy transition. Other informants were asked about their vision for sustainable energy transitions, their own engagement, adjustments and motivation, what societal changes they imagine, and their feelings about the future. They were also asked to reflect on other actors, on Gotland and in general, responsibilities and whether their own opinions align with ongoing transitions.

The interviews provided a very rich material, impossible to reflect in one article. Some themes, like growing geopolitical instability, and increased military activity on and around Gotland (Politician 1 2024; Politician 2 2024), was excluded despite the relevance for energy transition. In short, realizing a degrowth society is unlikely without global disarmament (Schmelzer and Hofferberth 2023), but is largely an issue over which planners have little power.

Documents

Energy planning on Gotland is typically done in the general plan, but since this, and a new energy plan was under revision at the time of writing (Gotlands Kommun 2010; Regionstyrelsen Region Gotland 2023b), other documents were studied to reflect the 'official' depiction of Gotland. These documents also exemplify how energy planning is often 'soft', both in terms of actors and scale. The regional development strategy, *Our Gotland 2040* (Region Gotland 2021), visualizes Gotland's future, with a clear focus on energy and sustainability, and the roadmap (Energimyndigheten 2019) represents the government's plan for Gotland's energy transition during the pilot period. I also included a strategy for service distribution across the island (Region Gotland 2018). It does not mention energy transition per se, but provide information of the region's plan for spatial interconnectedness and constitutes a more traditional, public planning, aiming to fulfil municipal obligations. For AE, I analysed the project report (Larsson 2023), which captures the initial vision, the obstacles they encountered and their conclusions.

Analysis

The first coding cycle was not guided by a particular theory, but was of more explorative nature (Saldaña 2013). It resulted in themes quite clearly aligning with either growth or degrowth, and the second cycle was thus explicitly attentive to the two theoretical discourse coalitions growth/degrowth. Concepts derived from the growth literature such as 'green growth', techno-optimism and place-branding were used to code growth-aligning formulations, while degrowth concepts such as decreased resource use, behaviour change and conviviality, was used to code degrowth alignment. Of course, the distinction between the two discourse coalitions is not clear cut, which is also addressed in the analysis and discussion. This coding was useful in identifying if and how Gotland's energy transition can potentially foster degrowth ideals within a growth-focused planning paradigm.

All empirical material for this study is Swedish. All citations are translated to English by me.

Ethical considerations

This study is approved by the Swedish Ethical Review Authority [registry number 2022-06488-01]. All data collection and processing has followed Swedish and EU legislation for good research ethics. All participants have given informed written or oral (recorded, for online interviews) consent to participating in the study. All participants were pseudonymised immediately after data was collected.

Results and analysis

Gotland

Across the material, Gotland is depicted as an ideal place for energy transition:

> There is great potential in Gotland's good conditions for local renewable energy production from sun and wind as well as resources for biofuels, sustainable construction material and locally produced food from the green businesses. (Region Gotland 2021, 10)

Close-knit communities and resilient population able to adapt and adjust to new and challenging situations, are recurring themes:

> […] people with a great engagement for their region and for community development. To live and work on an island has always required curiosity, collaboration, courage, and ingenuity. (Region Gotland 2021, 4)

Gotlanders are said to be early adopters of new technologies and used to take matters into their own hands, indicating potential for self-sufficiency: 'you have to be the smith of your own fortune, you have to find your own solutions' (Politician 1 2024). They are said to be seasoned by a history of arbitrary treatment from the state, and therefore unusually good at solving their own problems (Politician 3 2024). Indeed, collaboration is emphasized as uniquely successful on the island, and politician 1 shows pride in how the new governing coalition has facilitated cooperation and integrated sustainability thinking throughout the organization (Politician 1 2024). The roadmap for the pilot mission is almost exclusively relying on public/private collaboration, where small and

medium enterprises are appointed to further energy transition, facilitated by public actors (Energimyndigheten 2019).

Adaptable, local communities align well with degrowth visions, but most of the private actors mentioned in the documents and by the politicians are corporations in the traditional sense. Thus, while collaborations for sustainability projects are necessary, they risk favouring economic growth by default. Indeed, financial motivation is reiterated (Energimyndigheten 2019), and 'Additional costs of being a forerunner in the transition thus must not weigh on the Gotlandic society' (Region Gotland 2021, 33). Transitioning is also depicted as an asset for Gotland's place-branding. With tourism as a dominating industry in the region, it seems important that transitioning can 'charge the brand Gotland with more sustainability' (Energimyndigheten 2019, 56). A local innovation hub urged the region to showcase their transition: 'everyone knows a green transition is happening in Norrland [northern Sweden], but […] we are doing a green transition here' (Politician 1 2024). Thus, the Gotlandic cement industry, and its potential 'greening', should promote Gotland as a frontrunner (Politician 1 2024).

However, there are some diversions from the growth-ideal in regards to the economic factor in transitioning, showing willingness to 'break the pattern'. Politician 1 mentions an administrative manoeuvre where Gotland's energy office (Energicentrum) received funding from a regional development program, which they in turn could redistribute across the island, making funding reach smaller projects than initially possible, such as AE (Politician 1 2024). Politician 2 mentions a new calculation for investments invented by an employee:

> we have a recalculation which enables us to count for the better environmental investment. […] So it is not just pennies but pennies and environmental effect that makes the price acceptable. (Politician 2 2024)

These exemplifies creative solutions which could enable degrowth transitions while operating 'within the system'. The first in particular is a way of distributing power and means to actors whom would otherwise be left out. However, as the AE unit shows below, more long-term public support is likely necessary for sustained changes.

Besides the industry, the most pressing challenge for Gotland's transition is the dependence on ferry and aviation, for tourism, commuting and for Gotlandic agriculture, where 85% of what is produced is exported and must match mainland distribution chains (Politician 2 2024). Politician 2 specifically expressed concern: 'But what you ponder on, over which we have no ruling […] is the ferries, and all the cruise ships. Who looks into the environmental aspects there?' (Politician 2 2024). Politician 1 raise that the market for marine transportation, when asked, is not at all prepared to become fossil free by the targeted year 2027 (Politician 1 2024). Politician 3 is more optimistic about fossil-free ferries, but emphasize that they completely depend on realization of the large-scale offshore wind energy projects planned around Gotland at the time of the interview, and new transmission cables to the mainland. Politician 3 also highlight that Gotlandic farmers will not stand future competition unless the distribution chain is free from 'ugly fuel' (Politician 3 2024), thereby framing renewable fuels as important for corporate competition.

The option of reducing the need for goods transportation, for example by processing and consuming more food on the island, is not mentioned, unless it entails banding

Gotland as sustainable (Energimyndigheten 2019). As mentioned above, local food systems, and a transitioning cement industry, is largely used for place-branding, which could mean more visitors and increased travels to and from the island. The degrowth idea of downscaling technology and production to what is absolutely necessary thus seems like a far-away scenario on Gotland, as many sustainability projects rather seem to ask for increased activity. Finally, electric aviation is mentioned as a perfect solution for the short distance to and from Gotland (Politician 1 2024; Politician 2 2024), but does not solve the issue with goods transportation, or commuting Gotlanders and visitors bringing their cars and mobile homes oversea.

Reduced energy demand through behaviour change, strongly associated with degrowth, is somewhat mentioned in the documents: 'It is urgent for individual households to decrease energy use in housing and transportation' (Region Gotland 2021, 39), but: 'It presupposes however that people actually change their behaviour and chose other means of transportation than the car' (Energimyndigheten 2019, 47). Politician 2 brought up recycling (Politician 2 2024), otherwise behaviour change was mentioned when asked about. Politician 1 mention planning for efficiency in the new general plan, but that they themself struggle to change behaviours: 'and then it sometimes feels inconsolable that you have 60 000 others with the same resistance' (Politician 1 2024). Here, the service strategy stands out as a document clearly focused on minimizing transportation needs by providing basic service like pre- and elementary schools, libraries and retirement homes across the island. The strategy is mainly motivated by social equality, where all Gotlanders should access welfare services regardless of where they live. In addition, the strategy recognizes that although Gotland has a large, sparsely populated countryside, the relatively short distances on Gotland make the island suitable for the service accessibility strived for in the strategy (Region Gotland 2018). Here, a municipal planning document, not as influenced by growth-prone 'soft planning', shows alignment with the idea that a certain level of self-sufficiency (here as in welfare services) would both reduce transportations, which is an outspoken target of the strategy and potentially create opportunity for wage-work in these areas. However, units too small to maintain quality and economy might have the opposite effect if locals choose to drive to larger units instead (Region Gotland 2018).

In summary, Gotland seems both perfect and challenged in reaching net-zero emissions and a fossil free energy system. Obstacles like mainland transportation, emphasized as crucial for Gotlandic businesses (Politician 2 2024; Politician 3 2024; Region Gotland 2021) and emissions intense industries with a narrow financing window for large-scale technological investments to enable transition, are admitted, but largely seen as possible to overcome (Politician 1 2024; Politician 3 2024). Politician 3 says: 'we will manage the transition but a little too late', and, referring to the wind energy infrastructure projects planned around Gotland: 'Completely crucial. […] this here is northern Europe's energy supply' (Politician 3 2024).[1] In terms of self-sufficiency as a degrowth ideal, the large-scale energy projects could be framed as necessary for electrified industry and marine transportation running on green hydrogen. However, if accounting for degrowth-ideals of reduced resource throughput and strive for energy sufficiency, this development can be problematized.

Austerland Energi/Östergarnslandet

Östergarnslandet seem like a place for convivial life. The part-time residents in particular emphasize the closeness, friendly neighbours and community for transition work as prominent. They all claim to be (more) willing to engage in energy transition on Gotland and Östergarnslandet: 'Now there's a very large engagement out there in Östergarn and there one could […] possibly get involved further into the future' (Informant 4 2023). All seem to believe in decentralized, local transitions. An informant with primary address in a mainland city says:

> well on the countryside I believe that there is though, as I experience it much larger tendency to solve things together and take matters into one's own hands, and moreover to act together […] more willingness to make some personal sacrifices for the common good (Informant 5 2023).

This is also emphasized in the project report:

> It is only here, on the local level, that the concrete arrangements can be carried out. It is here we can produce more renewable energy and it is here we can replace the fossil car for one that runs on electricity. (Larsson 2023, 6)

This aligns well with how degrowth describe transitioned societies, where community is at the centre, and material needs are largely met locally.

The informants emphasize behaviour change as necessary for transitioning, thus echoing degrowth calls for sufficiency and efficiency: 'technological solutions alone are not enough […] without also having to change your behaviour' (Informant 4 2023), or: 'I think it is fully reasonable that we, like strongly try to think about how we are acting in everyday life, and how we consume […] regarding clothes and consumption at large' (Informant 5 2023). Some mention the need for values besides economic to become central: 'we can bathe in money, but can we not breathe, can we not drink clean water then, then we can shut down, then it does not matter' (Informant 6 2023), or 'The social or possibly the ecology has to be more in the centre than the economy. I await a paradigm shift there' (Informant 7 2023). A few mention travel behaviours, but interestingly mainly full-time Gotlanders, where they question the number of cars in their households and criticize poor public transportation on the island (Informant 6 2023; Informant 7 2023). Those driving electric cars seem content with this solution and do not bring up any negative aspects of EVs (Informant 1 2023; Informant 3 2023). One informant recognized that owning two houses is their most unsustainable behaviour, and jokingly suggested we should all migrate to a region which is 28 degrees Celsius on average, since domestic heating in the north is a huge waste of energy (Informant 3 2023).

Furthermore, one informant highlights the one-sided focus on climate change in the energy transition debate as too narrow: 'Well it is sustainability at large, […] that it contributes to a sustainable world for our children and grandchildren' (Informant 1 2023). The same informant emphasize the active work of including newcomers in Östergarnslandet's community, and how the 'gubbdagis' (a social gathering literarily translated to 'old men's kindergarten') make widowers live longer than anticipated after their wives' passing (Informant 1 2023). This resonates with both degrowth scholars and critics of techno-optimism in the holistic idea that community, care and conviviality is

as important as renewable energy technologies. Another see a bright future for the parish Östergarn: 'Östergarn will be a very prosperous part of Sweden, in the future' (Informant 3 2023) and then brings up other degrowth-ideals, like employing local constructors, and explore activities on Gotland rather than traveling abroad to ski, which used to be a preferred hobby. One Gotlander planning to move to Östergarnslandet in the future says an ideal life would be to work from home, and shop locally produced foods. However, desired cultural experiences, concerts and outside influences would demand travel to larger cities, which the informant is willing to do by train if work hours could be reduced with sustained salary (Informant 7 2023). This aligns with degrowth-ideals of working less, and with the claim that both 'urban' – and eco-villages will be desirable.

Although all informants emphasize the importance of changed behaviour, global responsibility and personal 'sacrifices' as vital to energy transition, indicating degrowth-ideals as necessary, most have a pessimistic view of people's willingness to adapt. One confesses that: 'how I feel right now is I would like for it to be possible without me having to violate my comfort' (Informant 5 2023). Economic benefits and – compensation are reiterated as key to having individuals and companies change (Informant 2 2023). In a somewhat bitter or surrendered manner, some conclude that a sustainable transition is unlikely to happen unless the market changes accordingly: 'Or you have to force people, and then […] it is often only economic incentives that helps' (Informant 7 2023). Some have tried to act more sustainable, but high costs made it nearly impossible: 'we transitioned and changed fuel in all tractors to HVO (biofuel, author's note), but that, it was completely impossible to, the costs are limitless' (Informant 1 2023). One informant, formerly working with energy efficiency in Region Gotland's buildings, is convinced that the public must be the frontrunner (Informant 6 2023). While the respondents have differing opinions on this matter, the success of the project as described by the former public employee does align with the degrowth idea that planning in the traditional sense can coordinate improvements for the public good.

As explained in the case description, the initial plan for AE was more ambitious than what the study proved feasible: 'The whole system design suggested in the pre-study […] had in principle been viable if we had no economic restrictions' (Larsson 2023, 25). The report finds it difficult to 'bring economy' to a carpool system in a sparsely populated area, instead they hope each household will invest in EVs (Larsson 2023, 20). A discussion on current tax-systems shows that private and corporate solar PV installations are more profitable than an energy community (Larsson 2023). However, the fact that the association started constructing a solar park in 2024 (SAEEF 2024) shows a sustained willingness to prioritize other, more degrowth-aligning values. While this is positive, it also shows that success of Swedish energy transition projects like AE is currently largely depending on genuine ambition to lower climate impact. Transition thus still needs more public planning support to sustain such ambitions.

Finally, despite the seemingly good preconditions for transitioning in Östergarnslandet, the project report also admits that these qualities might not be as present in other places, thus not guaranteeing that local is equal to sustainable:

> An important success factor in our project is the great interest from the local community. […] It is not certain that the interest is as large in other places in the country and we see this to foster the local interest as an important challenge in up-scaling. (Larsson 2023, 37)

In summary, both the AE project group and the informants believe in the ability for Östergarnslandet to be a prosperous, sustainable place in the future, largely aligning with degrowth-ideals, with locally sourced, decentralized energy, community and care, and a local, 'convivial' life. However, economic factors have changed the initial plan notably. Moreover, the promotion of Östergarnslandet comes with a wish for local development (Larsson 2023, 6), and that population and activity should grow, or at least not decrease. While this could mean more local activity, and foundation for improved service as described in the service strategy (which identifies Östergarnslandet as one of the most vulnerable areas in this sense) (Region Gotland 2018), it could also just increase commuting between Östergarnslandet and Visby, or even Gotland and the mainland, unless the two-thirds of part-time residents decide to move to Östergarnslandet permanently and relocate everyday activities there.

Concluding discussion

This case study explores diverging and aligning trends of 'soft', 'green growth'-focused and degrowth planning for energy transition in the Swedish island region Gotland, and the local renewable energy project AE. Gotland's potential for shifting to renewable energy, and the dwelling structure with an 'urban' centre and a multitude of rural parishes could potentially create fruitful conditions for the kind of degrowth planning which promote energy self-sufficiency and a mix of eco- and 'urban villages'. Assuming Visby could provide the qualities of an urban centre, with healthcare, culture and education and the rural villages provide food, basic welfare services, renewable energy infrastructure and close-knit communities near nature, Gotland could fulfil many criteria for a convivial and sustainable life. However, local and regional planning on Gotland is challenged by global market-forces, with emissions-intense cement industry, and local farmers depending on fossil-fuelled maritime transportation for export. Tourism, bringing almost a million visitors to Gotland yearly, also rely on ferry and flights. Transition projects at work, like carbon-free cement, sustainable foods and large-scale offshore wind power, if successful, is largely intertwined with place-branding and growth, with (potential) emissions-reduction as a positive side effect. In addition, some of these projects will need substantial amounts of resources if realised, and, as the material indicates, industrial needs seem to be prioritized at the expense of local climate change mitigation and environmental protection.

The degrowth call to downscale unnecessary production, and limit technological development to strictly needs-based, further problematizes the co-existence of global industries with ecological and social flourishing on Gotland. While some limestone extraction is crucial for modern societies, the issue of decreasing fresh water reserves on Gotland, likely worsened by mining (Ruiz Wedjesjö 2024), questions the localization of such industry. Similarly, while tourism is not undesirable by nature, it is unsure if a remote, Nordic, island can depend on frequent marine transportation to the extent that Gotland does today and still reach the radical reduction of resource throughput which is central to degrowth. In the end, however, larger, established industries are difficult for local planners and even politicians to influence, which is also mentioned by the informants. This exemplifies 'softening' of scale and governance, characteristic for contemporary planning, where corporate 'green

growth' interests of national and international policy seem to overrule local interests, short-cutting democratic processes in planning.

AE, on the other hand, shows a local actor and community with a strong interest in transitioning despite potential risks, and without secured economic benefits. Although the feasibility study found economic and technological limitations, an economic association was still registered and continued to establish a solar energy community. The project group highlight how their success depend on local engagement and community, which is reiterated by the informants whom on the one hand pays tribute to the local engagement, but on the other admit individual behaviour changes as unlikely without economic or legal intervention. Both the roadmap for the energy pilot and the regional development plan state that reduced emissions from transportation and domestic heating depends on individual behaviour change and neither the documents nor the interviewed politicians seem to have much faith in other solutions to this issue. Further, although showing care for the local community, most homeowners in Östergarnslandet live there part-time, leaving the issue of frequent travel to and on Gotland unsolved. Municipal planning documents such as the service strategy shows that there is planning to support degrowth development, although ultimately changes will likely depend on collaboration with dedicated communities.

While degrowth ideals does not necessarily negate creative, 'softer', public/private tools of conventional planning, the results indicate that degrowth development currently depend on genuine and altruistic engagement, and voluntary non-profit organizing in order for degrowth to be successful. Planning could thus focus more actively on enabling close-knit communities, with well-known ability to collaborate, to be creative and find solutions to challenging situations, making the most of local renewable resources. While ethical reflections on individual and collective responsibility are largely missing from regional and national planning, the local context might be more open for such discussions. What this study does not examine, however, is to what extent genuine engagement can be found in other local contexts. Chances are, as the AE project group concludes, that Östergarnslandet is in the extreme and that other local communities are leaning more to growth and status quo.

Future degrowth planning research could look more carefully into how emerging planning trends like 'soft planning' impact the ability for local planning to foster community and collaboration for development which puts emissions reductions before economic profit and place-branding. As the study shows, degrowth planning trends largely depend on actors and local communities with genuine climate engagement for their success, and more support from local authorities to sustain such changes. Future research should also account for how planning can foster collective solidarity and responsibility necessary for altruistic, voluntary downshifting. This is not new to the discipline but might have to regain status if techno-capitalist solutions are shown ineffective.

Note

1. In November 2024, the Swedish government refused 13 of 14 planned offshore wind power plants in the Baltic Sea due to conflicting interests with the Swedish Armed Forces (Bengtsson 2024).

Disclosure statement

No potential conflict of interest was reported by the author(s).

Ethical considerations and consent

This study is approved by the Swedish Ethical Review Authority [registry number 2022-06488-01]. All data collection and processing has followed Swedish and EU legislation for good research ethics. All participants have given informed written or oral (recorded, for online interviews) consent to participating in the study. All participants were pseudonymized immediately after data was collected.

Information provided to participants prior to their written or oral consent follow the guidelines provided by the authority. The information stated that pseudonymisation will be applied, and that results can be provided to participants upon request, after finalization.

All politicians and some of the other informants consented to have their names published. Since this was not considered vital to the results and analysis, all participants were pseudonymized. In addition, all identifying information, such as gender, age, exact addresses, etc. is excluded from the article.

Against the background of this information, consent to publish has not been collected for this article.

Data availability statement and deposition

Since the article is approved by, and follow the regulations of the Swedish Ethical Review Authority, data will be available only upon request, in which case all identifiable characters will be removed from the raw data. This is to protect the safety and integrity of the participants.

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