

User-Centred  
Energy Systems



# Agency by institutional entrepreneurs in the energy transition

**Thesis report**

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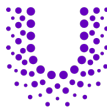
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Course code: BMO 80436

**November 2020**



## Preface

During an intensive period of seven months, I wrote my thesis about agency by institutional entrepreneurs in the energy transition. It was an unusual period of writing, especially due to Covid-19. At first, I thought that the development of Covid-19 would not affect my work and I considered myself happy that I was writing my thesis and not for example, taking courses. However, in retrospective, I do consider this period a tough, monotone and of course an isolated one. Nevertheless, I have learned to be reflective towards myself and also realistic, rational and more adaptive.

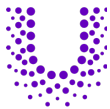
I want to specifically thank Jos Bijman for his balanced, sober and critical attitude towards my work. His feedback was always constructive, and somehow after our meetings I was always motivated to continue my work. Furthermore I would like to thank Ruth Mourik, my commissioner, for her guidance, her patience and her feedback, as not a single paragraph escaped her critical eye. She has guided and also challenged me a lot in my conceptual, academic thinking and writing and invested a lot of time in assessing my work. Her feedback took my thesis to a higher level.

Lastly, I want to thank Willemien Nieuwstad for organizing the thesis rings within the BMO department. The thesis rings were truly valuable as we, as thesis students, got introduced to each other's work in a fun and interactive way.

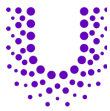


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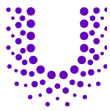


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## Abstract

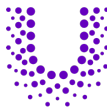
Although changes in our energy system are slowly emerging, current institutional arrangements such as policies, regulations, codes, behavioral codes of conduct and policy networks are constructed in a fossil energy dominant, centralized and hierarchical form of supplying energy. Institutional entrepreneurship rests on the principle that institutions are newly created or transformed by the actions of various actors, called institutional entrepreneurs. The challenges with regard to the current fossil-dominant energy context give rise to the exploration of the role of (institutional) entrepreneurs and the uptake of new business models. Business model innovation and their wider societal implications can be regarded as relevant since novel business models contribute to transformative innovations in the energy sector. In this study, a multiple case study is conducted in order to analyse several energy initiatives introducing new forms of business models in the Netherlands, Australia and Ireland. The cases are analyzed by an agency framework, focusing on the resources, discourses and the social position of the enterprise and how agency along with the business model contributed to (potential) institutional impact. The cases vary greatly. The Dutch case regards pilot from a grid operator operating in a market-based market development niche that engages with households in order to set up a marketplace to virtually trade energy in the neighborhood. Its agency is defined by strong collaboration skills with commercial parties, anticipation skills with regard to envisioning the role of the grid operator in the energy transition and also formal authority towards institutions. The case in Australia concerns a community mini-grid, operating in a community-based regime transformation niche where its agency strongly relies on profound informal community ties and community networks. Its agency is also defined by the collaboration skills of the enterprise, the ability to draw on ongoing discourses in the community and the skill to frame these discourses. The Irish case regards a successful market enterprise, operating in a market-based regime transformation niche, focusing on energy contracts for the Irish National Health Sector. Its agency is strongly defined by the intellectual resources that include expertise, experience and entrepreneurial skills of the enterprise. Furthermore, their social position can be regarded as robust since they manage to align with highly legitimate actors. All three cases demonstrate potential as already visible institutional impact defined by their agency and their niche context.



# 1. Introduction

There is growing awareness that a fundamental transformation in the way society consumes natural resources and produces energy is needed in order to tackle problems such as climate change and ecosystem degradation (Millot et al., 2020). In order to shift to a low carbon society and a sustainable energy system, significant changes in our energy system are needed (Proka et al., 2018). Although changes in our energy system are slowly emerging, current institutional arrangements such as policies, regulations, codes, behavioral codes of conduct and policy networks are shaped by and also shape a fossil energy dominant, centralized and hierarchical form of supplying energy (Mourik et al., 2019; Proka et al., 2018). In addition, it is argued by Geels (2019) that institutions thus shape and mediate technology, its use and user patterns. Therefore, the success of certain technologies is not only defined by technical and economic aspects, but also by the social system it is embedded in. “Existing systems such as the energy, agro-food and mobility systems are stabilized by institutions, comprising an integration of technologies, policies, user patterns, infrastructures and cultural dimensions that are created over time” (Geels, 2019, p. 189). This implies that current institutional arrangements might impede innovations in our energy system.

New technologies, products or services, especially of a radical kind, can challenge these institutional arrangements and might provide a breeding ground for institutional change and therefore underlie socio-technical transitions (Pelzer et al., 2019). There is shared understanding that radical innovations and socio-technical transitions, such as the energy transition, go hand in hand with institutional change (Pelzer et al., 2019; Bidmon & Knab, 2018; Geels, 2019). Innovation refers not only to technological advance, or creating market demand, but also refers to “actively challenging and creating institutions in a way that an innovation becomes legitimate and accepted” (Pelzer et al., 2019, p. 1.). Exploring radical innovation opportunities therefore requires an organization to run new kinds of business models (van Waes et al., 2018). A business model is a description of how an organization works, how it creates and captures value for its stakeholders (Mandour et al., 2015). In fact, there are novel business models emerging within the energy system that aim to accelerate the energy transition (Mourik & Bouwknegt, 2019). Also in the context of the energy sector, there is consensus on the claim that business model innovation and their wider societal implications can be deemed relevant since business model innovation can contribute to transformative changes in the energy sector (Mandour et al., 2015). More explicitly, it is emphasized that non-technological innovation is needed in order to transform existing (energy) production and consumption patterns (Bidmon & Knab, 2018). Most energy related business models are still fossil-dominant (Proka et al., 2018). In fossil-dominant business models, value is created with an absolute focus on the allocation of efficient resources and ignoring societal prosperity and the resilience of biological ecosystems (Romeiro, 2012). Business model innovation therefore requires a redefinition in the way an organization creates and captures value. Hence, business model innovation might be a significant element in achieving systemic change. In order to bring about business model innovation, entrepreneurship is being regarded as a catalyst by Hall et al. (2010). By means of business model innovation, entrepreneurs might have a role in working around the change of institutional arrangements. This specific entrepreneur carrying out this role has been given the title ‘institutional entrepreneur’ (DiMaggio, 1988).



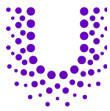
The concept of institutional entrepreneurship has gained attention amongst scholars (Garud et al., 2017). The adjective 'institutional' in this concept refers to institutions, also called 'rules of the game' which can be regarded as shared rules, laws, policies and social practices (Gölcegi et al., 2017). Institutional entrepreneurship, originally coined by DiMaggio (1988) rests on the principle that institutions are newly created or transformed by the actions of institutional entrepreneurs. Institutional entrepreneurs are thus described as "individuals or organizations that can create, maintain and disrupt institutions" (Jolly et al., 2016, p. 104). Institutional entrepreneurs leverage resources to address institutional problems and also attempt to solve them. This is done by propagating novel institutional arrangements or transforming existing ones to create value through their innovations (Jayanti & Raghunath, 2018). Institutional entrepreneurship thus refers to a range of actors such as firms, NGO's, industry associations, universities and advocacy groups (Jolly et al., 2016). Whereas collective, multidisciplinary settings and actions are often emphasized. Institutional entrepreneurship is perceived as a form of collective action, building on strategic alliances to align interests among advocates of institutional change and to challenge incumbent regimes (Heiskanen et al., 2019). Institutional entrepreneurship thus comes in different forms and shapes, and therefore accounts for a multidimensional concept.

Analyzing such change processes in terms of institutional entrepreneurship has recently gained attention (Duygan et al., 2019). Tracey et al. (2011) point out that institutional entrepreneurship goes further than 'conventional' entrepreneurship. More explicitly, stirring up institutional environments requires different skills than skills needed to roll out a business model. However, entrepreneurial skills and institutional skills can complement each other as. Given the fact innovations and thus business models can challenge and create institutions (Pelzer et al., 2019), there are indeed entrepreneurs emerging that create institutional commotion with their business model (Mourik & Bouwknecht, 2019). Duygan et al. (2019) claim that paying attention to the concept of agency can clarify how institutional changes can be established by a certain group of actors and therefore accelerate sustainability transitions.

For this reason, recent research is emphasizing the practical value of institutional entrepreneurship. This practical value entails that understanding the mechanisms behind agency by institutional entrepreneurs might enable potential change makers to address and overcome institutional constraints and find solutions to societal challenges such as the energy transition (Heiskanen et al., 2019). However, the interplay between actors that engage in business model innovation and institutions have not yet been clarified. The relationship between institutional work theories and innovation processes therefore remain unexplored.

In this study, institutional entrepreneurship is studied in the context of business model innovation in the energy transition. The aim of this study is to gain insights in the agency performed by institutional entrepreneurs running a business model in the energy transition by exploring what agency entails and how it is practiced in this specific context.

In order to get a hold on the concept of agency by institutional entrepreneurs, agency is defined as follows: the capacity to act for change (Duygan et al., 2019; Mahzouni 2019). Furthermore, according to the literature in institutional sociology, the main factors of agency are determined by resources, discourses and social position. Hence, in this study, resources, discourses and social position are regarded as determining factors for practicing agency. Therefore, to gain insight in agency by an institutional entrepreneur, these elements are also



used as a lens to further explore how agency is constituted. Resources are in this study regarded as means that an actors can deploy. Discourses are propagated narratives that persuade one's beliefs, interests and visions. Lastly, social position refers to the social network of the actor that reflects relationships with others (Duygan et al., 2019).

To illuminate agency by institutional entrepreneurs running a business model in the energy transition, this study answers the following research questions:

What does agency entail for institutional entrepreneurs running a business model in the energy transition and what is the role of agency in this context?

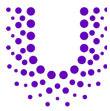
- What is are the resources that an institutional entrepreneur running a business model in the energy transition deploys and what is the role of these resources?
- What are the discourses that institutional entrepreneurs running a business model in the energy transition build upon and what is the role of these discourses?
- What is the social position of institutional entrepreneurs running a business model in the energy transition and what is the role of this social position?

As mentioned earlier, this study specifically zooms in at the institutional entrepreneur running a business model in the energy transition. This thesis is built on a multiple case study on entrepreneurs engaged in energy initiatives in the Netherlands, Australia and Ireland, focusing on business model innovation and thereby introducing alternative ways of capturing value, new collaborations and partnerships and hence challenging institutional arrangements in the energy sector.

This study will continue with the theoretical framework discussing literature focusing on institutions, institutional entrepreneurship and business model innovation. This section is followed by the method section, the results, conclusion and discussion.

This thesis is part of the Annex New Energy Services supporting business models and systems, a project initiated by User Centered Energy Systems Technology Collaboration Programme by the International Energy Agency. The Annex focuses on business model innovation and entrepreneurial strategies in the energy transition. Institutional entrepreneurship adds a new dimension to this work.





## 2. Theoretical framework

### 2.1 introduction

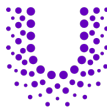
In this section, a number theories and frameworks that deem relevant for this study will be introduced to understand the role of agency from institutional entrepreneurs in the energy transition. First, the mechanisms in socio-technical transitions will be presented and will particularly touch upon Multi-Level Perspective by Geels (2002). Next, the role of institutions, institutional change and institutional entrepreneurship are discussed, including their role in socio-technical transitions. Then the concept of business model innovation and its relevance for institutional change will be introduced. Once these theories and frameworks have been discussed, the concept of agency is introduced, including a proposed model for analyzing the cases.

### 2.2. Multi-Level perspective

In order to explain how institutions and transitions are constituted and interact, the Multi-Level Perspective model (MLP) from Geels (2002) is shortly introduced. Geels (2002) suggests with the MLP model that transitions are a result of the interplay between processes at three levels: (1) the development of niches which are protective spaces where radical innovations are shielded and nurtured; (2) incremental change of stability of socio-technical regimes; and (3) landscape trends that put pressure on socio-technical regimes, creating windows of opportunities (van Doren et al., 2020; Geels, 2020).

The take-off of a socio-technical transition is often characterized by certain ‘misalignments’ between a socio-technical system and its surroundings which can result in societal tensions (Rotmans, 2018). Resistance, public discontent and polarization are examples of such tensions (Rotmans, 2018). These tensions can be regarded as a product of changing circumstances in the wider ‘socio-technical landscape’. In this landscape, new trends such as environmental awareness, climate change policies and shifts towards a low-carbon economy are phenomena that challenge existing socio-technical regimes (Gibbs, 2006). These tensions become visible and can eventually lead do destabilization of the incumbent socio-technical regime. They can create the opportunity for new structures to emerge and gain importance. These new structures and new ways of doing start in niches, which can be regarded as test environments for radical innovations (Schot & Geels, 2007). “Niches are protected spaces that allow for the experimentation of new social and technological configurations” (Ruggiero et al., 2018, p. 582). Niches can eventually break through and destroy the existing deep-rooted regime (Rotmans & Loorbach, 2008). According to Proka et al. (2018), a transition takes off when actors from the regime start to partner up with actors from the niche. This requires both niche actors as well as regime actors to operate beyond existing activities, routines and networks. Therefore, these collaborations could potentially contribute to establish change that goes beyond one’s community or network and therefore the formal and informal rules of the game that shape an actor’s behavior in society, also called institutional change (Proka et al., 2018).

“Existing systems such as the energy, agro-food and mobility systems are stabilized by institutions, comprising an integration of technologies, policies, user patterns, infrastructures



and cultural dimensions that are created over time” (Geels, 2019, p. 189). Actors such as engineers, firms, policy makers and regulators reproduce, maintain and improve these elements. At the same time, the perceptions and activities of these groups of actors are shaped by institutions (Sareen & Haarstad, 2018). All these elements mediate and shape technologies, their use and user patterns, which leads us to the term ‘socio-technical regimes’ (Geels, 2019). Thus, the emphasis on ‘socio-technical’ is based on the premise that all these social, institutional and systemic elements are intertwined with technology.

### 2.3. Institutions and institutional entrepreneurship

In institutional theory, the processes of institutional change (which is relevant for our perspective on transitions) are highlighted by scholars in various ways (van Doren et al., 2019). These ways include regime shifts, changes in dominant rules of the game, dynamics in institutional pillars or the institutionalization of new logics (van Doren et al., 2019). Institutional theory can provide insights into sustainability transitions, especially into how institutional environments are attempted to be changed by actors. Institutions provide continuity and stability in social order (Mahzouni, 2019), and thus in and of a regime. For the analysis of socio-technical transitions, especially the energy transition, institutionalism has therefore gained attention (Jehling et al., 2019). Institutionalism offers approaches for the analysis of “power, inequality and the continuing conflicts between groups and individuals” (Jehling et al., 2019). These elements are significant within a social-technical transition since a shift in power, inequality and continuing conflicts might result in challenging the social order and co-shape new institutional arrangements that impact the socio-technical regime. As also mentioned in the introduction chapter, institutions have been defined as shared (informal) rules, laws, policies and social practices (Golcegi et al., 2017). Institutions are constituted by regulative, normative and cognitive pillars (van Doren et al., 2019). Regulations (regulative pillar), expectations (normative pillar) and shared understandings (cognitive pillar) are examples of the multidimensionality of institutions (van Doren et al., 2019).

As mentioned before, a socio-technical regime consists of social, institutional and systemic elements that are shaped by and shape technology. Within a socio-technical regime, it is the interplay between institutions and actors that coordinate and guide actors and their perceptions (Jehling et al., 2019). Hence, a dominant regime can be regarded as the most institutionalized core of a socio-technical system, meaning that institutions offer a coherent arrangement of beliefs, norms and values and thereby create the fundament for a dominant regime (Jehling et al., 2019). Transitioning socio-technical systems are therefore characterized by differing and competing institutional logics (Jehling et al., 2019).

Literature on institutional work and institutional entrepreneurship on agential processes in institutional change is of particular importance (Doren et al., 2020; Fuenschilling & Truffer, 2016). These agential processes, or in other words; ‘agency’, are defined as the capability to act for change (Mahzouni, 2019). Actors practicing agency often act to realize their personal intentions, making use of an institutional setting (Jehling et al., 2019). By realizing their own intentions, actors influence their context and impact the range of possibilities of other actors. This is a process called institutional work (Fuenschilling & Truffer, 2016). The process of an actor interpreting rules, assigning its work to rules, adapting to, or resisting rules reproduces



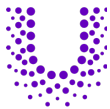
the modification of institutions. This can ultimately result in a dynamic relationship of structure and agency and, eventually, in institutional change (Jehling et al., 2019).

The type of actor and activity that is specifically covered in this thesis is the entrepreneur, which is due to its potential transformative role in the energy transition. Entrepreneurship is generally recognized as a mechanism to generate a form of self-employment that is capable of generating economic benefits (Téran-Yépez et al., 2020). For a long time, entrepreneurship has been approached by institutions to stimulate economic prosperity. However, societal and environmental issues remained overlooked (Téran-Yépez et al., 2020). According to many, the concept of entrepreneurship is now transforming into a potential solution for societal and environmental issues (He et al., 2020). According to Gibbs (2006), there is an emerging development of new business forms where a new generation of sustainable entrepreneurs or the so called 'ecopreneurs' aim to create positive environmental impact with business success and conventional entrepreneurial activity.

So the question that now arises is: what makes an entrepreneur an institutional entrepreneur? As also mentioned in the Introduction, the concept of institutional entrepreneurship has become influential in the study of institutional change (DiMaggio, 1988). "New institutions arise when organized actors with sufficient resources see in them an opportunity to realize interests that they value highly" (DiMaggio, 1988, p. 5). For this reason, institutional entrepreneurship is used to identify the activities of actors who have interest in the change of institutions. As mentioned in the introduction, institutional entrepreneurship is framed as individuals/organizations or a group of individuals/organizations that have a particular interest and aim to disrupt existing institutions and reconfigure or create new institutions to further their business. To achieve this, entrepreneurs engage in institutional work activities, which are the actions, the strategies and the processes to achieve institutional change (Pelzer et al., 2019). Hence, institutional entrepreneurs differ from 'regular' entrepreneurs in the way that, along with introducing new technologies or practices, they are involved in the creation or transformation of institutions (van Doren et al., 2019).

Institutional entrepreneurs can be both empowered and restrained by institutions (Battilana et al., 2017). This leads us also to the so-called 'paradox of embedded agency' in which institutional entrepreneurs find themselves. Institutions are characterized by stability, continuity and path dependence, whereas entrepreneurship is characterized by innovation, transformation and futurity (Garud et al., 2007). In other words, institutional entrepreneurs are socially embedded, and at the same time this specific type of entrepreneur has the agency to create institutional change (Mahzouni, 2019).

Institutional work theories focus on how daily practices and processes of actors influence the creation and disruption of institutions. However, it is emphasized that the maintenance of institutions is also essential. Incumbents, such as, for example, fossil energy companies, have interests in maintaining institutional arrangements since new institutional arrangements might be unfortunate for their business. Therefore, incumbents often resist institutional change and act as institutional defenders in order to maintain their dominant position, which results in a conflicting and contradicting playing field (Proka et al., 2018). In addition, it is emphasized that other actors than only entrepreneurs can engage in institutional work, as the actions in



institutional work are often collective and hence not performed by one single institutional entrepreneur. For this reason, the concept of distributed agency is highlighted in institutional work literature: the shape and reproduction of institutions by (un)intended and (un)coordinated efforts of various actors (van Doren et al., 2020).

Hence, institutional entrepreneurs can potentially have a disruptive or transformative impact on institutions. This premise gives them a relevant role in socio-technical transitions; institutions stabilize socio-technical regimes and transforming institutions might therefore disrupt a socio-technical regime.

As mentioned in the Introduction, current institutions such as policies, regulations, behavioral codes of conduct and policy networks are constructed in conventional, hierarchical and fossil-dominant socio-technical systems such as the energy system. The current energy system is predominantly centralized, market driven, large scale and largely dependent on fossil fuels (Proka et al., 2018). For example, the energy regime in the Netherlands consists of only a few parties that are responsible for delivering electricity, heating and transport solutions. However, the increase of decentralized renewable energy cooperatives are challenging the incumbent energy regime. Nevertheless, current institutional arrangements impede the uptake of sustainable business models that emerge with, for example, renewable energy cooperatives. In the next section, we will further explore the role of (sustainable) business models and why they can function as a mean for institutional entrepreneurs to do institutional work.

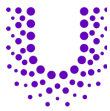
### **Innovations and institutional change**

One of the fundamental questions in the social sciences is how institutions are transformed (Pelzer et al., 2019). New technologies, products or services, especially of a radical kind, can provide a breeding ground for institutional change and therefore underlie socio-technical transitions and the evolvement of institutions. Radical innovations can challenge mental frames that developers, users and regulators apply in thinking about technology and markets. For this reason, the introduction of radical innovation is often accompanied by controversies and regulatory struggles (Pelzer et al., 2019).

Social studies of technology put emphasis on the role of innovative technological strategic niches in transition management. This notion gives rise to the relevance of entrepreneurial activity (Gibbs, 2006). In fact, there is entrepreneurial work that focuses on innovative experiments in alternative, sustainable technological niches, drawing lessons from challenges that are faced in the context of a dominant, unsustainable technological regime (Gibbs, 2006). For this reason, new entrepreneurs can be essential for transition management (Gibbs, 2006). Entrepreneurs operating in niches might have a role to play in addressing tensions that occur within socio-technical regimes by successfully solving bottlenecks in the dominant regime, eventually resulting in a break-through from niche level to regime level (Gibbs, 2006; Geels, 2002).

## **BUSINESS MODEL INNOVATION**

According to Van Waes et al. (2018), exploring radical innovation opportunities requires an organization to run new kinds of business models. For example, sustainable energy



technology such as solar energy goes hand in hand with models of new ownership, value chains, customer relations and financial flows (Proka et al., 2018). Business model innovation itself will not be sufficient to create systemic change within a socio-technical regime. For this reason, the combination of business model innovation and institutional reforms are deemed necessary according to van Waes et al. (2018). This highlights the interesting relationship between socio-technical transitions, institutional entrepreneurship and business model innovation.

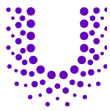
Business model innovation might challenge institutional arrangements. Adjusted institutional arrangements might then as a result, be more supportive in the development and diffusion of new business models. For an institutional entrepreneur, working around institutional change might thus be a strategy of safeguarding their business model. New business models and new technologies have specific physical and social properties, which might require institutions to be adapted, or even newly created.

In this thesis, we distinguish formal and informal institutions that might be affected by business model innovation. Formal institutions are then tied to laws and regulations, as informal institutions are more abstract and come down to norms, beliefs, attitudes and actions and practices of one actor. For instance, formal institutions can then include health and safety regulations, property rights, labor rights, technological standards, subsidy schemes and infrastructure investments. Informal institutions are less 'fixed' and hold the introduction of new partnerships, collaborations, new ways of organizing as well as new roles and responsibilities and social practices.

Embedded institutions may impede the uptake of an innovative business model, and changing them might be beyond the direct control of individual actors (van Waes et al., 2018). In order for an innovation to become institutionalized, recent studies on the emergence and institutionalization of innovations have emphasized the importance of gaining legitimacy for novel products, services and business models (Pelzer et al., 2019). Therefore, in order to scale up, it is essential for institutional entrepreneurs to gain legitimacy for their introduction of new business models (van Waes et al., 2018). In other words, to do institutional work, changing elements of the institutional context to favour their innovation is considered to be significant.

In summary, the main framework elements in this study have been covered by introducing socio-technical transitions, institutional entrepreneurship and business model innovation. It can be concluded that there is a relationship between these three elements, namely that institutional entrepreneurship in combination with business model innovation might help reconfiguring existing institutions and thereby contribute to the acceleration of socio-technical transitions.

Institutional entrepreneurship might thus be a driving force in, for example, the energy transition. Institutional entrepreneurship goes further than conventional entrepreneurship. As mentioned earlier, changing institutions cannot be done by an individual, heroic entrepreneur (Duygan et al., 2019; van Doren et al., 2020). Therefore, in institutional entrepreneurship, the collectivism of strategic alliances and distributed agency is often emphasized (van Doren et



al., 2019). In order to carry out distributed agency, multiple actors are required, from multiple disciplines that mobilize their resources in order to establish institutional change.

In this study, agency is regarded as a starting point to further analyze the actions of institutional entrepreneurs running a business model in a socio-technical transition. Therefore, in the next section, the concept of agency by institutional entrepreneurs will be further explored.

## 2.4. Agency and institutional entrepreneurship

Duygan et al. (2020) emphasize that the role of agency is gaining importance in transforming institutions. It is also argued by Mahzouni (2019) that the mobilization of diverse actors and promoting collective action can institutionalize a new practice or institutional order. Furthermore, according to Battilana et al. (2017) the possibility for individuals to engage in institutional entrepreneurship is profoundly determined by their social position, formal as well as informal. Jolly et al. (2016) also highlight the ability of “cultivating and maintaining relationships with decision makers, lobbying to secure resources and political support, providing information during regulatory hearings and using media to politically highlight individual concerns” (Jolly et al., 2016, p. 103). Other key capabilities that are emphasized by Heiskanen et al. (2019) is social skill and framing, which is based on the notion that actors need to be able to motivate other actors to cooperate by identifying and offering them common meanings and identities.

Agency is not considered as an entity itself, but as a relational concept. Therefore, agency can be regarded as a result of the interaction between actors and their social and physical structures (Duygan et al., 2019). According to Emirbayer and Mische (1998, p. 874), “agency is always a dialogical process by and through which actors immersed in temporal passage engage with others within collectively organized contexts of action”. Hence, an actor’s agency is always considered to be relative to other actors agency (Duygan et al., 2019; Emirbayer & Mische, 1998).

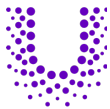
Furthermore, agency can be practiced both individually as collectively. The analysis of agency can therefore be applied to either individual or collective actors. However, agency is not something that an actor develops on an individual level, but always in a broader configuration of actors. For example, an actor’s resources depend not only on the actor itself, but also on the actor’s environment, manufacturers, suppliers, etc.

### **Resources, discourses and social position**

In this study, we zoom in at the conditions that account for means of engaging in institutional entrepreneurship as actors depend on their resources, networks and discourses to reconfigure institutional settings (Duygan et al., 2019). Therefore, these three elements are considered as the foundations of actors agency. For a visualization of all the constituting agency elements, see the tree diagram in figure 2. For full operationalization, see appendix 1.

### **Resources**

Resources have significant importance with regard to agency in socio-technical systems due to the fact that actions and strategies are bound by resources that an actor deploys. Three different types of resources are distinguished in this study: intellectual resources, authoritative



resources and economical resources. In this study, intellectual resources refer to mental abilities such as skills, and experience. As mentioned earlier, a few examples of skills that are highlighted in the institutional entrepreneurship and transition literature are: building on ongoing dialogues (framing), bridging dispersed stakeholders (social skill), establishing relationships, timing, anticipation, collaboration, sense making and the skill to identify common meanings and identities (Mahzouni, 2019; Heiskranen et al., 2019; Wiek et al., 2011; Battilana et al., 2017). Especially social skill is emphasized in the literature, as actors need to be able to motivate other actors to cooperate.

Authoritative resources encompass both formal authority as informal authority that an actor holds that facilitate the actors power to make formal as well as informal decisions and convince formal (actors in businesses, organizations or actors working in institutions) or informal actors (family, friends or a community) with ideas or visions. Lastly, economical resources constitute financial resources and time resources.

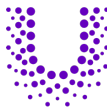
### **Discourses**

Discourses contain propagated narratives aligning with the actors beliefs, interests, expectations and visions (Duygan et al., 2019). Thus, by means of these storylines or narratives, actors can gain legitimacy for their innovations (Mahzouni, 2019). For example, according to Hajer (1995), political change may occur by emerging storylines that reframe understandings. Therefore, finding and articulating the right storyline becomes a profound element of agency. Importantly, discourses are not only to articulate policy solutions, but also to (re)define certain problems, address its root cause and defining who is responsible (Duygan et al., 2019; Tracey et al., 2011). Hence, storylines have the power to give shape to social and natural realities and also determine how these issues should be perceived and addressed. In other words, collective expectations and visions can function as a powerful institutional force, influencing the development and diffusion of innovation and are therefore a powerful element of agency for institutional entrepreneurs.

### **Social position**

The last key element of agency is the social position of an actor and relies on the social network established by relational patterns amongst actors. The social position can refer to the informal social position, the organizational social position and the institutional social position. The informal social position includes ties with friends, family and community whereas the organizational social position includes ties within a business or organization. Lastly, the institutional social position refers to ties with institutional actors such as municipalities, universities and public sectors.

It is emphasized that agency is always distributed, meaning that there is no single actor performing agency, but that it is always an alliance of collective agents attempting to steer the course of transitions (Duygan et al., 2019). This steering process depends on whether the competences for agency are sufficiently distributed (Duygan et al., 2019). For this reason, actors need to reach out and build bridges with other actors to establish trust, gain legitimacy and share resources such as expertise and experience (Mahzouni, 2019; Duygan et al., 2019). Hence, the social positions plays a crucial role in generating new knowledge. In addition, the social position also plays a positive role in creating support structures for innovation systems, therefore creating expectations and reputations.



Lastly, before summarizing all the elements in this theoretical framework, the field level conditions for agency will be touched upon.

### **Field level conditions for agency**

It is also argued that institutional entrepreneurs capacity to engage with institutional change, and thus their agency, is defined by field level conditions. Van Doren et al. (2020) emphasize that institutional entrepreneurship is carried out distinctly across different niche contexts. Therefore, four different field level conditions are identified by van Doren et al. (2020). These hold market-based niche development, market based regime transformation, community based niche development and community based regime transformation.

Market-based niche development is a context where institutional entrepreneurs operate in market-based environments with a focus on nurturing and growing niche development. This is often done due to the fact that problems are experienced with the capacity of current market-based solutions.

In market-based regime transformation, institutional entrepreneurs find themselves in market-based environments with an emphasis on reconfiguring incumbent regime institutions and connect them with practices and principles of market-based innovation.

Thirdly, in community-based niche development, institutional entrepreneurs operate in community-based contexts with a strong focus on nurturing and growing the niche. This is motivated by the fact that these institutional entrepreneurs believe that sustainability transitions need local bottom-up actions by means of community engagement.

Lastly, in community based regime transformation institutional entrepreneurs work in community-based environments with a focus on reconfiguring incumbent regime institutions, aiming to create institutional structures that facilitate community-based innovations to play a more profound role in transitions (van Doren et al., 2020)



In this theoretical framework, the correlation between socio-technical transitions and institutional change has been introduced, along with institutional entrepreneurship, the relevance of business model innovation and its potential institutional impact. In order to achieve institutional reconfiguration by means of business model innovation, an institutional entrepreneur has to rely on agency that is constituted by resources, discourses and the social position. For further detailed explication and operationalization of the three elements, see the tree diagram on the next page.

To illustrate the relationships between these concepts, a conceptual model (figure 1) is proposed. In the conceptual set up of this study, agency and business model innovation are complementing elements that reinforce each other. Business model innovation, as described earlier, can function as a mean to impact institutions. However, business models are also institutionally embedded, as the literature states with the paradox of embedded agency (Garud et al., 2017). Furthermore, business model innovation itself can also be regarded as a form of agency, and agency can also extend beyond business model innovation. Hence, the relationships are complex, not linear nor causal but can rather be considered reinforcing.

Ultimately, changing institutions can impact a socio-technical regime as a socio-technical regime consists of interlinked elements of technology, social practices and cultural dimensions, co-steered by institutional logics and vice versa. Hence, changing institutions can go hand in hand with a changing socio-technical regime and may therefore accelerate socio-technical transitions. On the other hand, the opposite is also true when the interplay between all the mentioned elements are taken into account. A socio-technical transition also impacts institutions, whereas institutions can then again impact business model innovation, which in the end, might affect an institutional entrepreneur's agency.

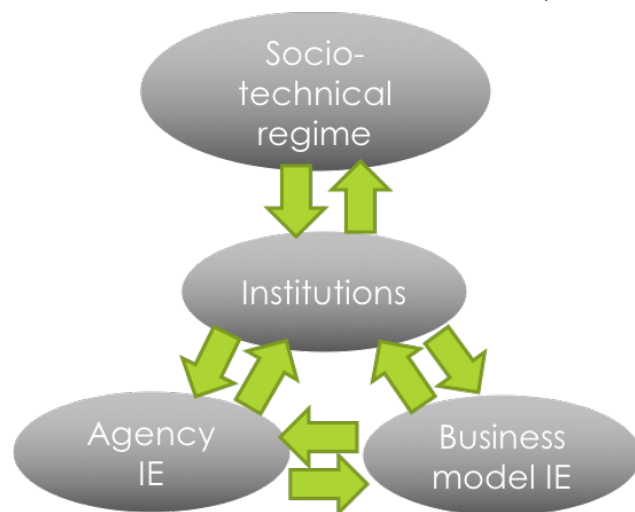


Figure 1: Conceptual model

## 2.5. Agency Tree diagram

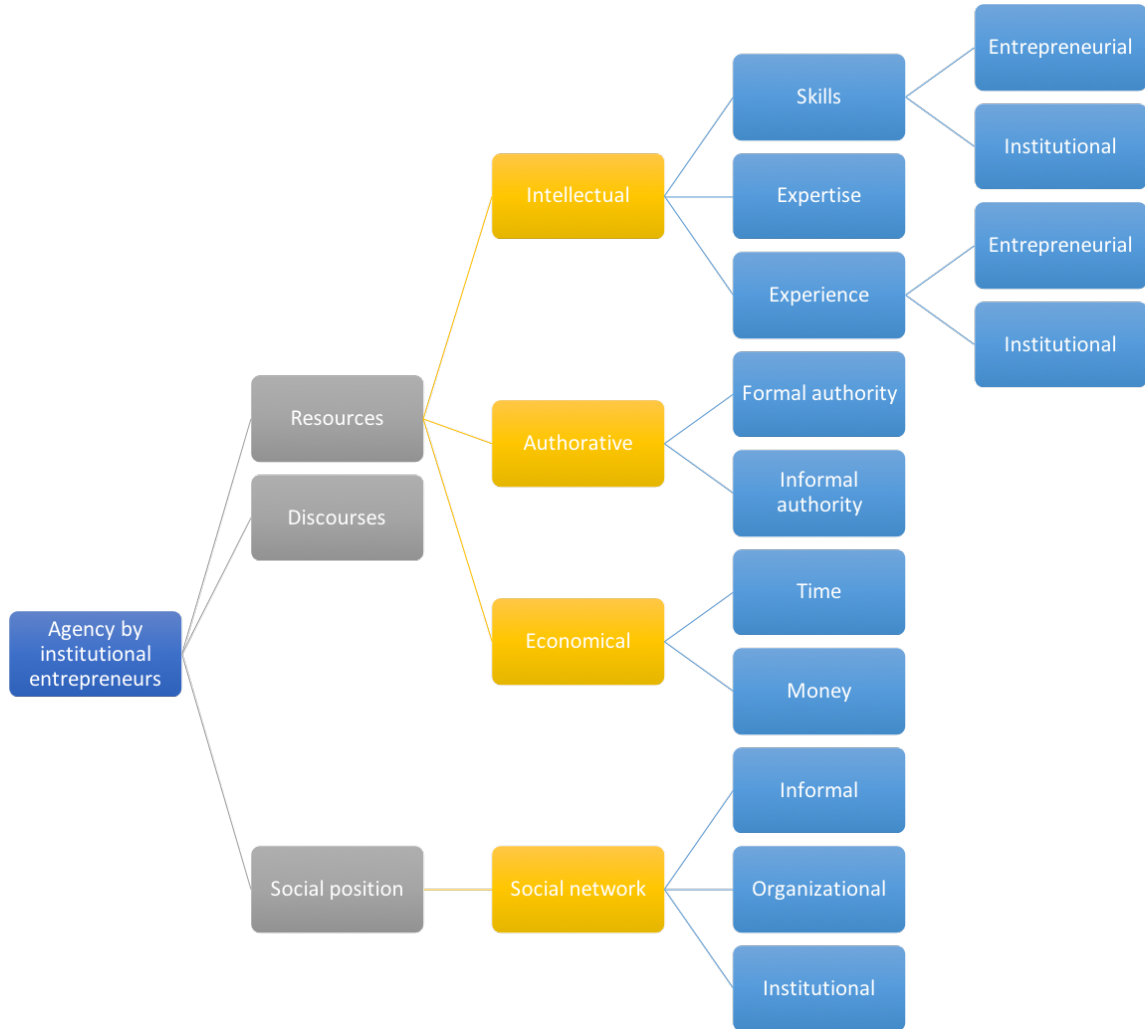
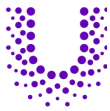


Figure 2: Tree diagram



## 2.6. Key concepts and definitions

**Institutions:** Also called 'rules of the game', are regarded as shared rules, laws, policies and social practices (Gölgeci, et al., 2017)

**Agency:** the capacity to act for change (Mahzouni, 2019) (Mert, et al., 2019)

**Institutional entrepreneur:** a collective of individuals/organizations that have a particular institutional interest and aim to disrupt existing institutional elements and reconfigure or create new institutional elements to further their business (Mahzouni, 2019)

**Energy transition:** The transition from energy system based on fossil fuels to an energy system based on renewable energy (Milot, et al., 2020)

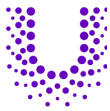
**Business model:** a description of how an organization works, how it creates and captures value for its stakeholders. A business model can be regarded as both a cognitive phenomenon as well as a construction of the material aspects (Bidmon & Knab, 2018)

**Discourses:** propagated narratives that persuade one's beliefs, interests and visions (Mert, et al., 2019)

**Resources:** means that an actor can deploy to run a business model (Mert, et al., 2019)

**Social position:** the social network of the actor that reflects relationships with others (Mert, et al., 2019)

For a full operationalization of key concepts, see the operationalization scheme in appendix 1.



## 3. Research methods

### 3.1. Research design

As mentioned earlier, the aim of this study is to gain insights into agency by institutional entrepreneurs running a business model in the energy transition by exploring what agency entails and how it is practiced in this specific context. The nature of this study will be descriptive as well as exploratory. As Kumar (2011, p. 118) describes, a descriptive study “attempts to describe systematically a situation, problem, phenomenon, service or program”. The study will also be exploratory as agency by institutional entrepreneurs, especially in the context of business model innovation in the energy transition is rather unexplored (Heiskranen et al., 2018). Research is often useful in order to gain better understanding of an existing problem or phenomenon, but might not always lead to conclusive results (Kumar, 2011).

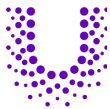
To explore agency, a multiple, qualitative case study has been conducted. The choice for a qualitative case study stems from the fact that such a study is used to illuminate an under researched phenomenon. As Kumar (2011, p. 112) describes, a case study is “a very useful design when exploring an area where little is known or where you want an holistic understanding of a situation, phenomenon, episode, site, group or community. This design is of immense relevance when the focus of a study is on extensively exploring and understanding”.

In this report three cases will be discussed. The three cases represent three niches where entrepreneurial actors focus on new and innovative business models in Ireland, the Netherlands and Australia. The first case holds a pilot performed in Hoog Dalem, the Netherlands, initiated by Stedin, a Dutch grid operator. Stedin has created a business model for households in order to test the role of households with regard to energy flexibility and the implications for the electricity grid that Stedin operates. The second case covers a community initiative in Yackandandah, Australia that has transformed in an energy retailer in renewable energy. The third case focuses on an enterprise called the Carbon Energy Fund Ireland (CEFI) that introduces a framework for contractual procedures with regard to energy infrastructure upgrades for the Irish national health sector. The three cases vary in field level conditions and therefore also a different entrepreneurial scope.

### 3.2. Data collection and analysis

In this case study, the cases will be analyzed by building up on the heuristic work of Duygan et al. (2019) discussed in the theoretical framework. The illuminated cases are chosen on the amount of information and the accessibility of information to understand the case in its totality. Furthermore, the following elements are taken into account by the selection of the cases: service oriented approach in business model innovation and also their potential formal as well informal institutional impact of the business model and the enterprise.

As mentioned earlier, the research questions will be answered by a combination of a literature study and multiple case studies. For the case studies, case material such as documents and data from previous interviews will be used. This thesis is part of the Annex New Energy Services supporting business models and systems, a project initiated by User Centered Energy Systems Technology Collaboration Programme by the International Energy Agency.

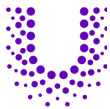


The Annex focuses on business model innovation and entrepreneurial strategies in the energy transition. Institutional entrepreneurship, however, adds a new dimension to this work.

Several case studies were already conducted by the business model Annex in order to gain insights in entrepreneurs handling innovative business models in the energy transition. In order to gain new empirical insights, additional semi-structured interviews were held as part of this masters study, using an interview protocol. For this protocol, see appendix 2. Hence, the case study has provided primary as well as secondary data.

Two interviews were held with each case, including one additional interview with an energy expert from the Dutch Tax Authority in order to get more legal understanding with regard to rules and regulations in the Dutch energy landscape. For the analysis of the case of Stedin, one interview was held with one of the project leaders of the pilot, and one with an employee of ABB, a company that was also engaged in the pilot. For the analysis of the Case in Yackandandah, one interview was held with the founder of the enterprise. An additional interview was held with a lawyer that was doing voluntary activities for the enterprise. Lastly, for the analysis of CEFI, one of the directors of the CEFI was interviewed, along with a project manager working at CEFI. All the interviews were digitally conducted via Skype, Zoom or Microsoft Teams in the period of June – August 2020.

The empirical data from the interviews was transcribed and coded. The coding process consisted of clustering insights based on the tree diagram and additionally an open coding process in which insights regarding the agency elements were coded. Since the interviews were semi-structured, a part of the questions directly targeted the core elements of resources, discourses and social position. Other questions indirectly targeted the core elements of the framework. For this reason, the data was coded by means of color marking using Word. For the interview transcripts, see appendix 3.



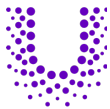
## 4. Results

### 4.1. Introduction and structure multiple case study

In the following section, the first case that will be covered is Stedin, followed by TRY Yackandahdah and CEFI. Stedin is a private organization but carries out a significant public responsibility. Stedin closely collaborates with the Dutch authorities and also is controlled by Dutch authorities such as the ACM (Autoriteit Consument & Markt). Therefore, Stedin's 'entrepreneurial position' is considered rather unique and can be characterized as a market-based regime transformation niche due to the fact that Stedin is attempting to create new value in energy flexibility and has built a business case revolving around energy flexibility. Since this kind of value is not marketed yet, but has the potential to be marketed in the future and might therefore contribute to a regime transformation in the market.

The second case covers a community niche called Totally Renewable Yackandandah (TRY) that is located in South-East Australia. TRY is an example of a community based niche development initiative that has transformed to a private social enterprise called Indigo Power. The enterprise is still in development and facing institutional barriers, and therefore still needs to be further nurtured. The third case covers a market-based regime transformation niche in Ireland called CEFI (Carbon Energy Fund Ireland). The CEFI is a private organization but closely collaborates with the Irish national health sector. The CEFI has changed the rules of the game in the Irish health sector with their business model and their business model construction also encourages other actors to participate and to collaborate.

Every case description commences with a brief introduction of the problem that the business model is addressing. This is followed by contextual information about the case and the business model itself. Thereafter, the results are outlined according to the agency framework, consisting of resources (including skills, intellectual resources, authority, financial and time resources), discourses and the social position (see tree diagram on page 17). Lastly, concluding remarks regarding every case are outlined, highlighting the most characterizing elements.



## 4.2. Pilot LEF Hoog Dalem

### 4.2.1. Introduction of the problem

Stedin, a Dutch grid operator and the initiator of this pilot, is responsible to operate and to maintain the electricity grid mainly in the western part of the Netherlands. Stedin is facing future challenges due to increased electrification and also decentralised electricity generation, because the limited capacity of the electricity grid can potentially result in congestion. An option for the grid operator is to expand and/or reinforce the electricity grid. However, the financial challenges that come along with grid reinforcements are enormous. Therefore, Stedin is looking into more cost effective, decentral solutions on a household level in order to postpone or in the best case, to prevent grid expansion or reinforcement. For this reason, the grid operator has set up a pilot to explore and test the possibilities for local electricity storage and energy trading amongst households by means of demand side technology, including blockchain technology.

Hoog Dalem, the neighborhood that has been chosen for the pilot, can be considered as the first Dutch all-electric neighborhood and is also one of the first Dutch neighborhoods which was built without a natural gas connection. Hoog Dalem, which was already an innovative and *avant garde* building project, therefore was deemed a good fit for the experimental interests of Stedin to develop and test demand side technology.

The pilot focused on a blockchain experiment which enabled the trading of decentral generated surplus energy amongst community members. Stedin played a profound role in this project, along with hardware company ABB, software company Enervalis/Ileco and the 14 households who participated. The technological configuration that was tested in the pilot, optimized the consumption of self-generated energy and enabled local energy surplus exchange by creating a local online exchange market for the households in Hoog Dalem.

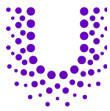
### 4.2.2. Business model innovation

#### Traditional business model

The current, rather traditional business model of Stedin is that they generate their **revenue** through a transport fee that is included in the amount that households pay to their energy supplier. In return, the **value** that Stedin delivers is operation and maintenance of the electricity infrastructure in order to enable electricity use for the end-users. The broad **customer segment** of Stedin includes households, firms, institutions and other parties in the western part of the Netherlands that make use of an electricity grid. **Partners** vary broadly from energy suppliers to other Dutch grid operators and governmental institutions.

#### Business model innovation: Hoog Dalem

However, due to developments and challenges that come with the energy transition, such as electrification and local energy generation, Stedin's traditional business model is under pressure. According to Stedin, reinforcing their entire electricity grid will have enormous financial impact. Stedin is also not allowed to set higher transport fees for their customers in order to anticipate on these financial challenges, since the fees for the grid operator are fixed



and controlled by the ACM (Autoriteit Consument & Markt), an authority in the Netherlands that supervises the activities of commercial parties. Stedin has thus particular interests in potential solutions in terms of energy flexibility due to the future challenges the grid operator faces and anticipates households as a part of the solution..

Furthermore, the phase out of the 'Salderingsregeling' can be considered a positive development for Stedin, but this is not the case for households who want to invest in, for example, PV installations. The 'Salderingsregeling' is a financial construction that makes it possible to lower a households energy bill with a certain amount for every surplus kW/h self-generated energy that a households discharges to the electricity grid. Hence, this makes it attractive to households to invest in PV installations. However, this financial construction will be gradually from 2023, cutting down the financial compensation until zero in 2030 (Milieu Centraal, 2020).. This cut benefits Stedin since this might bring them relief with regard to the operation of the electricity grid. However, Stedin acknowledges that they could offer households an alternative for the Salderingsregeling, since Stedin still wants to facilitate and stimulate households to invest in renewable energy, and at the same time they need to mitigate fluctuations in the electricity grid. This has resulted in a **value proposition** that is framed as an attempt to 'value' energy flexibility and also lower energy costs for households. this institutional arrangement will be gradually phased out from 2023, cutting down the financial compensation until zero in 2030 (Milieu Centraal, 2020). According to Stedin, this is a positive development since discharging electricity to the electricity grid becomes less attractive for households, resulting in less pressure on the grid (Interview Stedin, 2020).

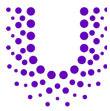
As mentioned earlier, 14 households of Hoog Dalem participated in the pilot, which can be regarded as the **customer segment**. The technological concept what was tested during this pilot, included a Layered Energy System (LES), incorporating the local exchange market. The system enables to trade locally produced energy to a lower market price than additional externally generated energy. Households install a mobile application that allows them to set their own preferences with regard to flexibility schemes, costs and the option between manual or automated control. Furthermore, to create **revenue** for households, an additional pricing system was developed, allowing energy being exchanged between participating households to be traded against a lower tariff. The main **partners** are hardware company ABB and software company Enervalis/ILeco

This constructed, alternative business model can be regarded as an innovative business model that revolves around the households rather than around Stedin, since the direct revenue is mainly created for the households, and where an abstract concept such as 'flexibility' can have potential value for Stedin in the future. Therefore, this 'sub' business that is household centered, complements the traditional business model of Stedin.

### 4.2.3. Agency

Important to acknowledge here is that Stedin, as a national grid operator, has a robust position in the Dutch energy landscape. Safeguarding grid capacity and operation is considered a public task, enabling proper electricity use. This also implies that Stedin has a profound public responsibility and is therefore interacting closely with the Dutch government and municipalities. Their 'entrepreneurial' position is therefore different than for example, entrepreneurs starting a business out of scratch in a niche market. Hence, from a regime





position, Stedin aims for regime transformation by engaging in niche activities. For this reason, their institutional impact is correlated with this secure regime position with regard to resources and social network that Stedin already enjoys.

The agency aspects that will be touched upon are related to the business model of the pilot but are also related to Stedin as an grid operating organization itself.

## Resources

### Entrepreneurial skills

According to Stedin and ABB, several entrepreneurial skills were crucial in this project. **Technical** skills were emphasized, along with **IT/blockchain skills**. In the context of the energy transition, the challenges are mostly perceived as technical challenges, but are also significantly social challenges.

*“If you look at the energy transition, there is a huge technical part, a digitalization part and an innovation part. In many cases, this comes down to technical innovation and digital innovation. However, when it comes down to successful innovation, 75% starts with **social innovation**”* (Interview ABB, 2020). To be able to implement certain solutions, bottom up social acceptance is gaining significant importance (Interview ABB, 2020).

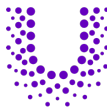
For this reason, according to Stedin and ABB, **communication skills** and **social skills** are highly important. *“During the evening, we had these informal gatherings with the households where we were just sitting around the kitchen table. The ideas were brought up by the households, and from there the social acceptance was created”* (Interview Stedin, 2020). Also **project leadership** is being regarded as highly important; inviting the right partners and the right skills to work together.

*“You have tech tech, people who have affinity with tech, but very important here is to enable people, connect people with each other, challenge each other and to collaborate”* (interview Stedin, 2020).

### Institutional skills

With regard to institutional skills, **collaboration skills and networking skills** are essential here. Stedin is, as grid operator, limited in their role with regard to the market. They are not allowed to compete with commercial parties with regard to energy supply or technology. Stedin therefore needs to stick solely to its role as a grid operator. Commercial parties have more freedom with regard to rules and regulations than Stedin has as an institution. For this reason, more partners were needed to develop the technology and to engage with the households. Knowledge is divided amongst several partners, all depending on each other. For this reason, it was crucial for Stedin to engage with commercial parties who are operating in the market since they are active in the market and therefore are also able to sense how the markets develop (Interview Stedin, 2020).

As emphasized by Stedin and ABB, there are shifting roles and responsibilities, which are becoming rather horizontal than vertically ‘chain’ oriented. ‘Parties are not operating on their own island anymore’ (Interview ABB, 2020). Due to the upcoming developments of the energy transition that challenges the fossil, centralized status quo, parties realize that they become dependent on each other and therefore, parties need to collaborate. This is, for example,



especially the case for households who can play a critical role in energy flexibility. Other than that, the electric car industry could play a role as well with electric car batteries.

*“What you see now is that it is becoming interesting. Other grid operators, the Tennets of these world, now start to realize that there is a lot of value with regard to flexibility. What you also see is that BMW and Tesla join the mobilization, along with heat pump companies”* (Interview Stedin, 2020)

Other partners such as Enervalis, a software company, is an important partner for them that is keeping them alert. Enervalis brings in new neighborhoods, wins tenders and connects those with subsidies.

*“With such partners, projects like this become replicable. Yes, it is really something that is scalable because of the emerging market need”* (Interview Stedin, 2020)

Furthermore, especially for grid operators, strong planning and **anticipation skills** are highly relevant since grid operators need to anticipate on upcoming developments with regard to heat districts, charge infrastructure, solar PV, hydrogen or off-shore energy (Netbeheer Nederland, 2017).

## **Experience**

### **Entrepreneurial experience**

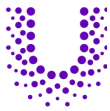
As mentioned earlier, Stedin is a robust party with many skills and experience in the Dutch energy landscape as a grid operator. However, with regard to the energy transition, it is acknowledged by Stedin and also ABB that social innovation is becoming more important. Stedin has delivered several other pilots as a project leader, but it was relatively new to Stedin and ABB to engage with households on an informal and personal level and to discuss their ideas and to take into account their needs. Therefore, Stedin is building up its skills, learning along with the pilot in Hoog Dalem. Therefore, Stedin also acknowledges that practices such as these are essential elements since they are, in a way, becoming dependent on the households as a resource.

Stedin has experience in managing pilots and thus to collaborate with commercial parties that are operating in the market. This experience might be important to Stedin since this collaboration gives Stedin more insight how to attract and mobilize commercial parties, and for example, frame a discourse that aligns with commercial parties.

### **Institutional experience**

According to Stedin, they have a clear grip on the societal costs of the energy transition and they are profoundly anticipating on these societal costs.

*“The government states that it is surprised by the impact of all the solar installations. Especially the fact that rural areas are considered to be attractive building solar installations, but the grid in rural area’s has not sufficient capacity to allocate the generated energy. That causes*



*problems. Well, that has not surprised us at all. But it is us who need to define how we are going to proceed” (Interview Stedin, 2020)*

Stedin also co-developed the ‘10 punten stappenplan voor netbeheerders’ to steer the energy transition and make it successful (Netbeheer Nederland, 2017). This was done to inform the government about the role of the grid operators and what grid operators need from the government in order to facilitate this plan and hence the energy transition. According to Stedin, they are regularly consulted by the government in order to give advice with regard to certain topics in the energy transition.

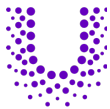
On a formal and institutional level, Stedin is a stakeholder that is familiar with ‘the rules of the game’ of the energy regime. Stedin works closely with authorities such as RVO (Rijksdienst voor Ondernemers), municipalities and the national government and has experience in lobbying with regard to the ‘Salderingsregeling’ and other lobby activities for institutional arrangements that were in Stedin’s interest.

With regard to the pilot, Stedin gains additional institutional experience in engaging with households, and plays a profound role in redefining the roles and the responsibilities of the actors in the energy transition. For Stedin, it is becoming more clear that households play a role in the transition discourse in terms of energy storage and flexibility. By setting up and experiment with new business models that make it attractive to households to participate and to invest in renewable energy, Stedin gains experience and furtherly shapes the discourse for further projects that require an active role of households.

### **Authority**

On a household level/end user level, Stedin states that most of the households do not know Stedin as a grid operator. As mentioned earlier, the grid operating costs are included in the energy bill from the energy suppliers. Therefore, households are not directly connected to Stedin, and have no clear insights in the activities of Stedin. For this reason, they are also not profoundly acknowledged by the households as an actor with a certain authority. Therefore, Stedin had to put a lot of effort in creating trust on a household level in order for them to participate in a pilot. On the other hand, the households did not need to pay for the technology since that was fully paid by Stedin, which made it easier for them to participate.

The fact that Stedin has a clear grip on the societal costs of the energy transition and what the role of the grid operator is, contributes to the fact that Stedin is considered, from an institutional perspective, as an actor with formal authority. This is evidenced, according to Stedin, by the fact that Stedins expertise in the challenges of the energy transition is used on a governmental level. The CEO regularly gets invited for a spot at the table with for example, the prime minister. Furthermore, municipalities have a significant amount of Stedin’s shares in the holding. Hence, municipalities benefit when Stedin makes profit. For this reason, municipalities and Stedin strongly rely on each other. Furthermore, it is acknowledged by municipalities that Stedin has a role in local transition processes since municipalities also want to stimulate their inhabitants to shift to, for example, all electric. For this reason, local grid reinforcement might become inevitable and that is exactly where Stedin comes in.



*“Municipalities just don’t want that the streets of Paleis Noordeinde are constantly under construction for grid reinforcement. You just can’t sell that. But they also want their inhabitants to be able to charge their car and being able to cook electric. Hence, we start the conversation, per municipality, how we envision the role of the municipality in the energy transition and how they can succeed in their ambitions. Look, we don’t say as an authority; this is how it goes, and if not, forget it. No, we start the conversation, and see if we can meet each other in the middle. By being proactive in that sense, you show authority, but you also start the conversation” (Interview Stedin, 2020).*

### **Time resources**

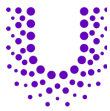
Stedin acknowledges that social innovation is becoming more critical, especially with constructing business models that also gives value to end users. To discover this value to end users, especially for households, Stedin needs to engage with households. Household engagement is, however, also the most time-consuming process according to Stedin. For households, it often takes more time than expected to get the technology working and also to get the household to understand the technology and learn the know-hows.

Stedin, in a sense, became dependent on households and their behavior in terms of energy use. Therefore, they need to engage in these processes and activate the households to change their behavior. The fact that this is a time consuming process for Stedin, also indicates that this could be a matter of experience. Since Stedin is becoming more dependent on households, they need to build experience with households on such an informal level and establish trust. Traditionally, as a grid operator, Stedin was more focused on technological innovation. Therefore, Stedin was more likely to spend its time resources on technology and engineering, rather than social innovation. However, due to the fact that Stedin acknowledges that social innovation is become more significant, also might imply that Stedin needs put more effort in social innovation in terms of time resources. Ultimately, this might affect their organizational structure by, for example, hiring social researchers or energy coaches.

### **Financial resources**

As mentioned earlier, Stedin operates under ‘supervision’ of the state and is therefore not operating in the market. Stedin anticipates enormous expenses with regard to grid reinforcement, and is willing to do whatever it takes to postpone or prevent these expenses. According to an interview with the Dutch Tax Authorities, the ACM (Autoriteit Consument & Markt) is setting the price for grid operating tariff for the end users, which is included in the total energy tariff that households pay to their energy supplier. Hence, Stedin does not get to set its own prices, but is dependent on the ACM. However, since Stedin is facing these upcoming expenses, it cannot higher the grid operating costs for end users, since Stedin is not in the position to set the price. For that reason, Stedin is urged to look into other kinds of innovation that are more cost effective.

Stedin therefore spends its financial resources in these alternatives. It has paid for all the hardware and the software that the household needed to have installed for the pilot. For Stedin it was especially important to test the hardware and the software and therefore gain more insights in the potential role of households with regard to energy flexibility and storage. Stedin also defined competitive challenges for the households to motivate them to change their energy behavior. This clearly stems from the fact that Stedin sees potential in decentral energy



solutions and the roles of households and is therefore willing to invest and experiment in pilots such as Hoog Dalem.

## Discourses

In general, most of the households do not experience insecurity with regard to their energy usage. Therefore, it becomes a challenge for Stedin to create an attractive business case for households and to activate them to take a more active role in the energy transition. A significant part of Dutch households for example, are not directly motivated to work around solutions for the sake of the energy transition and there is a lack of urgency to anticipate on future problems. Hence, the discourse for Stedin, that entails anticipation on the future with regard to the electricity grid, does not necessarily align with the perception and motives of households.

For this reason, Stedin gained insights in the needs of the households. What turned out to be important to the households was the fact that they were able to play a role in order to use the generated energy locally. *“It is generated in the neighborhood and we have to make sure that it stays in the neighborhood”* (interview Stedin, 2020). For this reason, Stedin and ABB formulated the new name of the pilot: LEF (Lokaal, Energie, Flexibel).

*“Defining the right story was quite a challenge. Because how do you communicate the value of something, without being able to show it. In other words, we couldn’t offer direct and clear results such as lowering the energy bill with 10 euro”* (Interview Stedin, 2020)

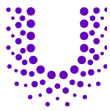
According to Stedin, they really made an effort to set up a branding and an identity for LEF. Stedin, for example, engaged with the local newspaper and also invited the mayor to give households the idea that they were participating in something new and innovative.

Stedin might have had difficulties with framing a good discourse for households, but this might not apply for framing a discourse for commercial parties. Commercial parties might sense market opportunities in the future that might be unlocked partly due to Stedin’s activities. This discourse of market opportunities for commercial parties is noteworthy since commercial parties can play a significant role in market-based regime transformation.

## Social position

### Informal

Stedin’s traditional relationships and network can be mainly regarded organizational and institutional as they work with commercial parties such as ABB, Enervalis and institutional parties such as municipalities. However, with the pilot in Hoog Dalem, Stedin has defined a potential new role for themselves as well as for households. Engaging with households requires a different narrative and a different and more informal approach than for example, engaging with a municipality.



## **Organizational**

Stedin partnered up with commercial market actors such as ABB and ILecco. As also mentioned in the section regarding skills, necessary knowledge is divided amongst several actors and according to Stedin, a mobilization of heterogeneous actors is taking place. For example, BMW, Tesla, Tennet and the heatpump industry are all joining forces to collaboratively solve the challenges that come along with the energy transition. These parties start to realize that they can all complement each other and that they all have a role in shaping this potential new market. For example, the batteries of BMW and Tesla can be used for bi-directional charging and hence serve to support the electricity grid. When there is a surplus of generated energy, the car battery can function as a buffer during peak demand. Hence, new partnerships are emerging with different sectors.

As also mentioned earlier, Stedin is restricted with regard to their role as a grid operator and is therefore urged to engage with commercial parties that are operating in the market. Furthermore, Stedin is looking into the possibilities of creating knowledge exchange amongst LEF communities. They want to connect LEF initiatives with each other, in order to create a format of basic knowledge in open source software. Hence, for Stedin's organizational position, this implies a broader, facilitative and leadership role towards other LEF communities and might also lead to collaborations with parties that deliver software and (digital) knowledge platforms.

## **Institutional**

The network that can be considered relevant for the pilot in Hoog Dalem, is rather informal and organizational and not so much institutional. Therefore, institutional relationships are prominent for Stedin, but less relevant for the pilot.

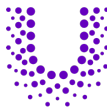
As an institution itself, Stedin works closely with other institutions. Stedin works together with the government, municipalities, knowledge institutes, the build environment and also with other grid operators such as Tennet, Enexis and Liander. The Dutch grid operators are collaboratively arranged in the network 'Netbeheer Nederland' and from that collaborative arrangement also proposed the '10 Punten stappenplan voor een succesvolle transitie' that was directed the Dutch National Government. Hence, also due to Stedin's profound institutional position, Stedin's social network is strongly defined by the institutional network.

## **4.2.4. Conclusion**

### **Agency**

Stedin's agency is mainly institutionally defined with a prominent organizational and institutional network and institutional authority. According to Stedin, several parties and industries start to acknowledge the value of collaboration in the energy transition, resulting in a mobilization of heterogeneous actors. However, since the energy transition comes along with new roles and responsibilities, Stedin might need to define a new role for themselves towards households, aligning with novel activities that come along with this role.

Compared to commercial companies, Stedin has the financial resources to initiate pilots such as Hoog Dalem. Furthermore, Stedin can be characterized with a broad set of entrepreneurial



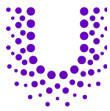
skills as well as institutional skills. Stedin has shown project management skills, technical skills, financial skills, collaboration and anticipation skills. However, it is the question whether these skills are to be considered relevant in the context of pilots that focus on households' energy practices. Traditionally, grid operators are not directly in touch with households. The pilot has changed this relationship due to the fact that households potentially become a resource which might result in new relationships and partnerships between households, tech companies such as ABB and ILeco/Enervalis, and Stedin.

With regard to discourses, it is mainly Stedin who anticipates problems and not the households. Therefore, it was a challenge for Stedin to define the right story. Hence, there was not an explicit external discourse that Stedin used for their pilot. The discourse was formulated later also by means of marketing, after gaining insights in the needs of the households. Households are not directly motivated to bring forward and participate in solutions of challenges and problems that come along with the energy transition. Therefore, Stedin also considers it a challenge to motivate households to play a pro-active role. For Stedin, there is a tangible sense of urgency, which is not the case for households. Hence, there was no shared and collectively felt discourse that Stedin expanded upon. However, for commercial companies this might be a different case as there might be business opportunities looming. Hence, for commercial parties the discourse shifts more towards commerciality.

Currently, Stedin is taking an active and leadership role with regard to the pilot. However, Stedin's role as a grid operator remains limited and therefore Stedin can't engage in commercial practices. Pilots such as Hoog Dalem are set up in order to discover the value of energy flexibility, and once this value is discovered, commercial parties might become interested and could contribute in shaping the market. Once this happens, one could say that Stedin task as a grid operator, attempting to discover potential value that can relieve the electricity grid, is completed. For this reason, Stedin's agency is currently active, putting effort in establishing strong heterogenous partnerships with commercial parties with the ultimate aim to discover market opportunities. For this reason, collaboration with commercial parties is essential for Stedin since Stedin is dependent on those actors to further shape the market and even become a standalone market. Stedin attempted to find and define a market, but has no interests and is not allowed to operate in that market itself. When the market is nurtured enough, Stedin's agency might become more passive again.

### **(Potential) Institutional impact of the business model**

As mentioned in the theoretical framework, informal institutional arrangements include norms, beliefs, actions and social practices of an actor. Informal institutional arrangements that Stedin is potentially reconfiguring with the business model, are energy sharing and privacy with regard to device use. Traditionally, energy supply and consumption takes place at household or individual level. Households don't need to play an active role since the grid operator, the energy supplier and the infrastructure are there and take away most of the work. However, energy supply, consumption and especially energy sharing now becomes a collective, more open practice that requires an active, more engaged and organized role of households. Furthermore, institutionalization of the business model might also imply that a grid owner gains more insights and also influences the use of household devices. For example, when the electricity grid allows it, a household gets a notification on when it is the most proper time to



use a device and might also reward the household. Hence, social practices might be impacted by the grid operator.

For a grid operator, investing in decentralized flexibility at household level might also challenge double tax tariffs. If a grid operator initiates to install a community battery to save electricity that is generated during the day, a so called 'second delivery' of electricity takes place, that formally needs to be taxed. This makes it financially unattractive for a grid operator to invest in community batteries.

According to Stedin, this pilot is scalable and Stedin also anticipates on a growing market with regard to energy flexibility and therefore a more prominent role for households. Therefore, households become an important partner for Stedin and thus also a resource, since with the business model, a two-way dependency has emerged.

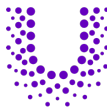
The pilot was considered successful by Stedin since the households engaged and participated and therefore, Stedin has gained insights in the implications of energy flexibility on the electricity grid. In order to make it attractive to households, Stedin has created for a 'fun factor' by means of energy competitions financial incentives. However, for a large scale rollout of this pilot, Stedin needs to finetune the business model since Stedin has now paid for all the technology. In order to make households willing to invest in such technology, more strong financial incentives might be necessary. Therefore, even though the pilot is considered successful and scalable, the business model as it stands now, especially the revenue model, is insufficient to cover for a large scale rollout, especially for large scale battery purchases on household level.

At the moment, as mentioned earlier, the activities of Stedin find themselves in market-based regime transformation niche, that still needs to be further nurtured. As mentioned in the theoretical framework, niches might gain momentum and break through towards regime level and become institutionalized. On a system level, large scale roll outs of such business models that capture value in energy flexibility might imply a stronger reliance on technology and hence, the algorithms that carry out the 'thinking' work. The business model of Stedin revolves around blockchain algorithms that determine the most suitable time for consuming energy on a household level and also, the best timing for trading energy surplus to other households. Thus, technology gets to determine household behavior and therefore, households give away a part of their privacy and autonomy. On the other hand, household might gain autonomy since the business model rewards self-generated energy and therefore, households become less dependent on centralized, fossil fuel companies. Furthermore, given the fact that the 'Salderingsregeling' will be cut out, energy storage and also energy trading might become more attractive to households, which then might imply emerging opportunities for the battery market and also electrical cars with for example, bi-directional car battery charging. Hence, interconnectivity between technologies such as batteries, household devices and energy technology such as PV systems and heat pumps is gaining importance and plausibly gets to impact household behavior. If such developments can guarantee a resilient electricity grid for grid operators and enable market opportunities for commercial parties, laws and regulations that impede such innovations as for example, double tax tariffs, get challenged. Hence, this potential niche market can on the longer run stimulate a mobilization consisting of commercial





parties that further challenge the status quo of a centralized, hierarchical and fossil energy regime.



## 4.3. TRY: Totally Renewable Yackandandah

### 4.3.1. Introduction of the problem

The electricity retail market in Australia is not considered to be transparent. Therefore, energy retailers in Australia are not always trusted by their customers. Furthermore, the increase of energy demand puts pressure on the national grid which causes brown outs and black outs. Black outs in the electricity grid are also caused by bush fires, which is considered a significant problem in Australia. Especially remote towns in rural areas are vulnerable to disruption to their electric supply during natural disasters. Locally focused energy infrastructure, supported by community-scale generation and storage mean that remote communities don't need to fully rely on hundreds of kilometers of electricity grid being repaired and checked before the power can be reconnected after a fire. Therefore, the community of Yackandandah has decided to take matters in their own hands and create autonomy and start a community energy retailer along with a community mini-grid.

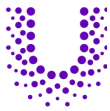
### 4.3.2. Background information

Initiated and developed by the local residents in Yackandandah, North East Australia, the Yackandandah mini-grid is the first commercially run mini-grid in Australia. The community organized themselves as Totally Renewable Yackandandah (TRY), endeavoring to set up a sustainable energy community. TRY's ambition is to radically reduce energy consumption of local households and businesses and completely cut fossil fuel consumption by sourcing, generating and storing electricity from renewable sources. Local residents co-created the proposition; surveys were conducted in order to gain insights in the energy behavior of the local residents. Furthermore, public meetings were organized in order to present potential technological configurations and prioritize preferred solutions. In the first roll out phase, the technological configuration included the combination of PV system, a storage battery and a demand response software tool called Ubi.

In Australia, energy retailers are the only entities that can trade energy. Therefore, in order to run a mini-grid, TRY had to set up a community energy retailer (CER) which they named Indigo Power. For this reason, TRY turned into a social enterprise. In order to not reinvent the wheel, Indigo Power partnered with energy retailer Energy Locals. This partnership took away a lot of hassle for Indigo Power and also saved them a lot of time due to the fact that they didn't have to obtain their own retailer license.

TRY promotes the concept of renewable energy communities amongst other towns in North-East Victoria. According to Ben McGowan, volunteer of TRY and founder of Indigo Power, the amount of renewable energy communities is growing. They put a lot of effort in going to other towns, telling the stories and invite people of other communities to come and participate.

TRY facilitates other communities in setting up a community energy hub model. They spread the knowledge where Indigo Power also helps to set up the tools, helps with energy supplier business and have the software installed that shows the people how much energy is being generated and consumed locally. For example, if people want to have solar panels in the warehouse in town, or do a bulk buy in battery and solar products, Indigo Power helps to do that.



### 4.3.2. Business model innovation

Indigo Power has developed a mixed business model. **Revenue** is generated through a combination of a subscription fee and volume-based charge. The **value proposition** entails that the **customers**, which are the households and also the local municipality, can opt for mini-grid technology by paying a subscription fee for electricity sharing through the grid which will reduce the volume based electricity fee. Furthermore, on membership base, customers can access the demand response software.

Start-up capital of \$750.000 from membership fees, grant funding and debt enabled the CER to cover the expenses and investments needed to run the mini grid. Furthermore, the CER will take responsibility for strategic management, customer acquisition and retention, contracting and partnerships with regional community energy groups.

In order to make the project less dependent on private household investments, the CER will invest in a community solar system to increase the local generation and storage capacity. Eventually, customers will be able to purchase electricity from three **resources**: households that joined the mini-grid, the community solar system and from the National Electricity Market (NEM). Furthermore, as mentioned earlier, Indigo power has opted for a **partnership model** with an existing retailer Energy locals to tackle certain issues such as generation shortages, lack of skills and experience. Furthermore, in order to carry out infrastructural modifications at household level for mini grid participation, Indigo Power also collaborates with grid operator Mondo Power.

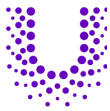
### 4.3.3. Agency

TRY operates as a community-based market development niche, intermediating between rural communities and institutionalized actors. However, the aim of TRY could be regime transformation as the development of the market is not considered the ultimate goal of TRY. The set-up of TRY / Indigo Power can be seen as a local response to climate change and as an attempt to take matters in their own hands. Furthermore, contextual drivers such as lack of transparency in the electricity market contributed to the set-up of the initiative. According to initiator Ben McGowen, the movement is growing in North-East Victoria in terms of community energy groups and therefore also the amount of customers and resources of TRY / Indigo Power. TRY's agency goes further than only the business model, since the activities of TRY are not only related to the business model but also targets community mobilization.

## Resources

### Entrepreneurial skills

According to the initiator, several skills were deemed to be crucial in the set-up of TRY / Indigo Power. **Problem solving skills** were considered as important since the initiators had no experience in the electricity sector. Therefore, the set-up of the initiative was perceived as a 'steep learning curve'. **Technical skills** were deemed important as well, such as **software skills** and **business management skills** including **finances**. According to Ben, you have to be able to do 'a little bit of everything' and also be able to bring in different kinds of knowledge.



**Organization skills** were also emphasized as the initiator did not have the resources to hire professionals and had to perform many tasks by himself which required good organizing and **project management skills**. However, there was a lawyer engaged who was able to manage the contracts and other formalities.

Another concept that was talked about in the interviews, is **confidence**. TRY was aware that there was no professional marketer, finance expert or electrical engineer aboard, but nevertheless managed to work around these skills by themselves to a certain extent and learn.

In retrospect, the skills that were lacking, are effective marketing skills and electrical engineering. According to the initiator, he was able to do marketing to a certain extent. However, he does not have the resources to hire someone who is an experienced marketer. Furthermore, it was emphasized that there was nobody experienced in the electricity sector and also no expertise in electrical engineering.

*“We were learning along as we went. It has been good, but pretty tricky. It would have been nice if we would have anyone experienced in the electricity sector”* (Interview TRY, 2020)

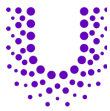
### **Institutional skills**

The network of community energy groups has been growing in the region of North-East Victoria. TRY is putting a lot of effort into going to other towns, reaching out to other non-profit groups, telling the stories of TRY, showing other towns what is possible with regard to renewable energy and also invite other people to participate in those discourses. Therefore, **network building** can be identified as an institutional skill. According to Ben, there were six or seven community energy groups in North-East Victoria when TRY started. This amount has grown up to sixteen community energy groups.

*“If you are starting a group by yourself and you want to do something about renewable energy and climate change, and you start wondering, well, what do we do, that’s the hardest question to answer. But if you are connected with other groups, and you know Indigo Power is there as well, lots of things can happen. Everyone is on different stages of the journey, and a new group can come, and see what else is happening, pick up projects, participate in regional projects, asking questions what’s best for me, what’s best for our group”* (Interview TRY, 2020).

An important strategy was to **‘find the right people’** who were willing to put work into setting up a community energy group or just spread the word. TRY brought together all the existing not-for-profit groups in the area in North East Victoria, and have conversations about setting up a community energy retailer, and from that group set up a network. In addition, TRY partnered up with bigger regime corporates such as Mondo Power and Energy Locals, which will be more elaborated in the social network section. For TRY, these collaborations with larger players were essential due to the lack of skills, expertise and experience. Therefore, **collaboration** can be emphasized as an institutional skill as well.

*“There’s external factors, other towns in Australia that have been doing excellent stuff before TRY came along. TRY has been leading the charge, especially the partnerships that TRY has*



*developed. I really think that that is the strongest thing. It's not the expertise in TRY to go and build a mini grid, but the capacity to genuinely build partnerships, which I think that other energy groups were not getting into bed with real corporates" (Interview TRY, 2020)*

According to TRY, organizing events has been a crucial element in order to keep people updated about the activities of TRY.

*"Keeping people informed what's happening with us as well, setting up and conveying that network for that not for profit groups has been pretty important. And in fact, talking about all those events, we were going to be in each of their towns, each of their partners, in that network, going to the towns where there is a group, standing with them on a stage, telling the story and answering questions. That's been pretty important" (Interview TRY, 2020)*

Furthermore, acknowledging that every community is different, operates in a different stage and has its own story is essential as well. The technology is the same, but every community has its own motivation and drivers. For example, towns with low socio economic components are picking up a certain focus and start to think what they can do with regard to community energy.

According to TRY, it's hard to explain something new and to keep it simple. Therefore, one of the ways of reaching people and to create trust, is to invite them, pass the word of mouth one on one and make sure they understand it. The quote below illustrates the significance of building trust and also how trust is being established.

*"In order to **build trust**, people like to see you, hear you and asking questions. Because is something new that we are doing and people don't necessarily understand it. That's one of the difficult things" (Interview TRY, 2020).*

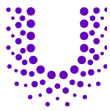
## **Experience**

### **Entrepreneurial experience**

There was no entrepreneurial experience in this initiative, especially no entrepreneurial experience in the context of the energy sector. Hence, the entrepreneurial experience was built along with the setup of TRY / Indigo Power. However, one of the shareholders of TRY/Indigo Power is regarded as a successful entrepreneur. He started a software company and now manages many hospital management software systems in Australia. He has been working with TRY, giving his advice and helping them to do their job better and helps them to understand their business better. Given those reasons, TRY partnered up with larger corporates like Mondo Power and Energy Locals and use their experience, skills and expertise.

### **Institutional experience**

Before setting up TRY, the initiator finished a PhD in environmental sociology and politics. During the setup, the initiator became aware of the systemic issues and vulnerabilities of the Australian energy landscape such as interdependencies in the tariff system, vulnerabilities of the electricity grid, needed investments and regulations for being an energy retailer. However, according to the initiator, it is acknowledged that certain rules are there for a reason and TRY



/ Indigo power operates in the embedded frameworks of the Australian energy landscape. On the other hand, the initiator is engaged with the local municipality and philanthropists in terms of funding. Furthermore, the initiator is engaged with the environmental department of the local government to set up an energy plan for the region. He was in the control board and helped to guide the process. Since he is engaged with the environmental department, he is also aware of opportunities with regard to funding. He shares this knowledge with the other energy community groups; he attends their meetings and makes them aware of the fundings and introduces them to certain matters that they need to be aware of. Hence, he is sharing his knowledge and experience with other groups

## **Authority**

### **Informal**

TRY / Indigo Power is a bottom-up initiative with a strong focus on community ties. The initiator was in the position to build a large informal network by visiting other communities, organize events, promoting the discourses, consulting and face to face conversations. According to the initiator, these elements were crucial in building trust and strong community ties and hence the establishment of informal authority. The initiator was heavily engaged with the communities and therefore also knew what the needs were and how to meet those needs. Furthermore, external events such as the bushfires and the blackouts even reinforced the needs of rural communities to be more independent and resilient. Indigo Power is responding to these needs, resulting in the fact that communities might be more likely to listen, follow and to participate. Hence, this is likely to increase the informal authority of TRY.

### **Formal**

As mentioned above, the community ties of TRY can be regarded rather informal than formal. However, engaging in environmental department as a board member and owning a PhD in environmental sociology might impact the formal position.

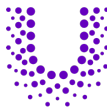
What also plays a role, is that certain dependencies are emerging according to TRY. TRY is highly dependent on regime actors such as Mondo, but Mondo is also relying on TRY as a community group since they need community support in order to carry out change in the energy landscape.

*“TRY and Mondo, even though TRY is like a tiny group, Mondo is a massive international corporation. We could do each other serious reputational damage. Which is pretty crazy, it’s not an equal meeting, but we invested a lot in each other. There’s a lot to like about that, big corporate have a lot of resources in order to create major change, but they can’t do it without support from communities “(Interview TRY, 2020)*

This implies that by partnering up with regime corporates and the fact that regime corporates also become dependent on community groups, might impact the formal authority of TRY.

### **Time resources**

TRY / Indigo Power started as a community initiative and has evolved in a small-sized but professional market entrepreneur. For this reason, there is limited capacity to develop additional formal activities to address systemic issues by, for example, lobbying. Additionally,



as mentioned before, many entrepreneurial activities were performed by Ben himself since there were no financial resources to hire professionals. Therefore, financial resources and time resources are complementary in that regard.

Furthermore, with regard to informal activities, TRY / Indigo Power is relying on volunteer work from people from the community. According to the initiator, there are many retirees in the area who do have the time to put effort into the community by, for example, joining the board, helping with events, do consultancy and help spread the word. Therefore, with regard to informal community activities, time from especially the retirees can be considered as a resource.

### **Financial resources**

TRY was strongly dependent on funding from the authorities. In order to roll out energy retailer Indigo Power, the initiator was granted \$30.000 from the local municipality. Furthermore, Indigo Power was dependent on funds from the Victorian Government, such as the Victorian Government's New Energy Jobs Fund. However, these funds are incidental and not consistent. The business is currently in operation and Indigo Power receives revenue by monthly fees that the customers pay for the energy services that Indigo Power delivers. However, for a small-sized social enterprise, financial resources remain modest.

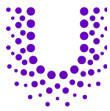
In addition, Indigo Power has recently done its first public share offer. This was done via a campaign, in which \$300.000 was raised. As a part of the organized events, Indigo Power is now promoting that people can become a shareholder as well. As a result, almost 270 people bought shares which made Indigo Power financially more robust. However, according to the initiator, this is also considered challenging since it is easier to engage 20 shareholders than 300 shareholders.

### **Discourses**

According to the initiator, the discourses, especially in community initiatives, are a crucial element in the success in terms of social acceptance and participation. The three main drivers of Indigo Power are: 'Decentralizing, Democratizing and Decarbonizing'. Indigo Power is based on community partnership and/or ownership of energy supply and/or governance systems. This means that the ambition of Indigo Power is to create local ownership over sustainable energy resources and to reduce energy consumption by offering viable alternatives that align with the needs of the community members. Hence, autonomy with regard to energy consumption plays a profound role in the communities. According to the initiator, referring to 'the leaky bucket theory', a lot of money that is spend in rural communities, is bend elsewhere and often gets back to the cities. Therefore, by means of Indigo Power, the aim is to let the money circle through the communities a few more times.

*"When we started, there were six or seven groups. And now we're up to sixteen community energy groups. There are good stories in these regions, inspiring stories and they show other towns what is possible"* (Interview TRY, 2020)

As mentioned earlier, external events play a role in the discourses as well. Especially bushfires and blackouts severely affect rural communities with regard to their electricity. Therefore, the discourse of autonomy and decentralization, not being dependent on a electricity cable hundreds of kilometers elsewhere, influences people's willingness to participate.



Climate change plays a role as well. Severe weather events such as extreme droughts and bushfires are already happening in Australia. Therefore the effects of climate change are already visible and tangible. According to the initiator, this affects the sense of urgency that people have and the willingness to take action. Hence, people also understand that they have some agency by participating in community energy groups and TRY/Indigo Power.

*“That’s a lot of what we’re about, generating excitement that we can take control of this. we were really strong at that stuff. We could fill a town hall, we were really strong with marketing and messaging and get a town hall area engaged with some videos and presentations, that’s inspiring for people”* (Interview TRY, 2020)

Hence, the external events co-shape and reinforce the discourses of decentralizing, democratizing and decarbonizing in the community energy groups in north east Victoria. However, being able to **frame** and to give rise to these discourses can be considered as an area of concern as well. In that regard, organizing events, bringing in the ‘right’ motivated people, taking into account the needs of the community, sharing the stories, sharing the knowledge and acknowledging that every energy community has its unique characteristics can be considered as strategies in this context to communicate the discourses.

## Social position

### Informal

The initial focus was to establish a ‘Totally Renewable Yackandandah’ with a strong focus on the local community. However, it has grown beyond its boundaries by developing a community strategy by taking along other communities. Building alliances with other networks and hence, network expansion provided a breeding ground for upscaling in terms of customers for retailer Indigo Power.

As mentioned earlier, the growing network of energy community groups relies on strong community ties and can therefore be regarded as informal. There are volunteers and shareholders that have certain expertise and experience such as expertise in law and entrepreneurial experience. Therefore, those volunteers were able to help with for example, setting up the energy contracts and sharing entrepreneurial knowledge with regard to finances and the organizational set up.

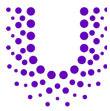
With regard to heterogeneity, the network consists of mainly middle aged people with a certain financial capacity that are also helping on a voluntary basis.

*“They are not working three jobs, they are either retired, they got the time to think about what they want to do with their electricity. Basically it has been at the moment, the community of interest is self-selective in a way, we have done a lot of events and so on, and the people who come to those events are the people you would expect to come at those events”* (Interview TRY, 2020).

### Organizational

However, by officially setting up the community energy retailer Indigo Power, TRY had to hire someone that was going to take care of the customer service. Therefore, the organizational set up has become more formal and professional. Furthermore, as mentioned earlier, Indigo





Power did his first share offer in which they sold 270 shares. In total, they now have 300 shareholders that need to be engaged as well.

Furthermore, as mentioned earlier, Indigo power has opted for a partnership model with an existing retailer Energy Locals to tackle certain issues such as generation shortages. The partnership construction was also beneficial since the initiators started as community volunteers and lack the skills, capacity and experience to cover all services that an energy retailer has to offer.

*“Months ago, we faced the decision, we want to have a electricity retailer license, that would take 5 years and we would have needed millions and millions of dollars without any revenue to do that. Or we could enter the market a lot sooner and partner with an existing retailer. So we took that option”* (Interview TRY, 2020).

TRY also partnered with Mondo Power, a grid operator that is regarded as a robust international corporate. According to TRY, many community initiatives would not engage with bigger corporates, whereas TRY did.

*“For all intents and purposes, Mondo is a massive corporate and that’s where a lot of community energy groups would have turned off”* (Interview TRY, 2020).

Furthermore, other big companies are moving to Australia as well and there are plans to create massive solar farms. In fact, in Australia, 10.000 much more solar energy can be produced than it actually needs, attracting solar companies to invest in solar fields in Australia. However, according to TRY, larger international companies are surprised what community energy groups have carried out with regard to renewable energy initiatives. Community energy groups not only work around change on a local scale by for example, putting on solar panels on a town hall, but carry out a complete mobilization with regard to renewable energy in the region. For this reason, larger companies see the benefit of partnering up with community groups and work alongside them.

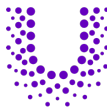
### **Institutional**

From an institutional perspective, the network remains quite modest. There are ties with researchers, experts, the local and regional government with regard to funding opportunities. As also mentioned earlier, one of the initiators is in the environmental department of the regional government in order to guide a regional energy plan to support funding. However, the dominant network of Indigo Power remains an informal, community based network.

## **4.3.4. Conclusion**

### **Agency**

Hence, in the region of South East Australia there is a mobilization taking place with regard to community energy groups. The initiator of TRY and energy retailer Indigo Power is acknowledged as a legitimate and trusted social entrepreneur who is able to mobilize other stakeholders by gaining their trust, motivate them and inspire them to participate. This has resulted in a network of 16 energy community groups that are facilitated by Indigo Power. Skills that are prominent with regard to TRY, are network building, collaboration and



establishing trust. Entrepreneurial skills that were deemed necessary, were technical skills, IT skills, project management skills and finance skills. However, due to the lack of resources and time, not every skill could be fully developed and deployed. For example, marketing skills and electrical engineering were lacking. According to the initiator, the setup of TRY has been experienced as a steep learning curve mainly due to the lack of experience in the electricity sector. Therefore, entrepreneurial experience had to be built along with the set-up of TRY. With regard to institutional experience, the initiator became aware of the systemic issues and vulnerabilities of the Australian energy landscape and the needed investments and regulations for being an energy retailer. However, there are insufficient resources to address and tackle these systemic issues towards authorities.

The initiator collaborates with the local government to set up an energy plan for the region. Furthermore, the initiator was engaged with local authorities and philanthropists and was therefore aware of for example, funding opportunities. This knowledge and experience is shared with other energy groups.

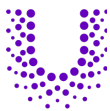
With regard to financial resources, TRY was strongly dependent on the local government. Despite the fact that TRY has rolled out a business model with setting up Indigo Power and is currently in operation, financial resources remain modest.

The discourse that TRY promotes can be regarded as an prominent element of TRY's agency. The discourse can be regarded as a collectively shared narrative focusing on decentralizing, democratizing and decarbonizing with a strong focus on the community and its autonomy. External factors such as blackouts, bushfires and droughts have shaped the discourse and affect the sense of urgency for people to participate. The discourse is communicated by means of organizing events, visiting other communities, share success stories and sharing knowledge.

Based on strong community ties and volunteer work, the social position can be regarded strong and informal. The network has grown from 7 energy groups to now 16 energy groups in the region. However, there are slight shifts to a more formal, organizational set up. As mentioned earlier, Indigo Power has established a partnership model with Energy Locals and Mondo Power in order to tackle issues that come along with the fact that Indigo Power is an unexperienced player in the energy landscape. In fact, bigger companies are starting to realize the significance of working along with energy groups due to their mobilizational impact. Therefore, TRY and energy groups in general start to get acknowledged as legitimate partners by larger corporates.

Furthermore, Indigo Power has done a first shares offer, whereas Indigo Power has sold 300 shares. Engaging 300 shareholders requires a more formal and possibly more professional approach. Thus, while the network ties may remain informal, Indigo Power is shifting to a more organizational network structure.

In summary, TRY's agency is mainly characterized by community resilience, strong community partnerships and strong community discourses. TRY is, however, shifting to a more formal, professional set up with increasing formal authority. With its agency, TRY is impacting the regional energy landscape in South-East Australia.



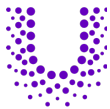
### **institutional impact of the business model**

The institutional impact can be a result of the business model but also a result of community mobilization, which in this case, go hand in hand.

Institutional arrangements that are impacted or challenged by TRY's business model are rather informal. Since the electricity market in Australia is highly institutionalized with many rules and regulations, TRY is playing a role in community mobilization to take matters with regard to energy in their own hands. Relationships with the supplier are more personal and informal and households become resources since they (partly) generate electricity that is consumed. Furthermore, rural areas gain energy autonomy and independency since they are becoming less dependent on the national grid and therefore less prone to black outs. Informal institutional arrangement that are thus shifting are relationships, roles and responsibilities, dependencies and also social practices and energy behavior that are more likely to be steered by the technology.

In terms of impact on formal institutional arrangements, the impact is limited. TRY is strongly institutionally embedded. The electricity market is highly institutionalized with many rules and regulations, with which TRY has to comply with. For example, it is only possible to trade energy in Australia if one is officially registered as an energy retailer. Therefore, as mentioned earlier, TRY was urged to set up Indigo Power. Furthermore, the pricing tariff system in Australia is highly complex and is based on the equal pricing principle. Regardless of the distance, everyone pays the same price for their energy, whether located in a rural or urban environment. Locally generated energy is more cost effective, but it is not possible for Indigo Power to lower the price of local energy exchange. However, large scale decentral generation and consumption might potentially challenge this pricing system. When the amount of community energy groups, keeps increasing, the pricing system might lose its initial use and value as more community energy groups start to generate their own electricity. Hence, the role of TRY in the community mobilization becomes relevant, especially in rural areas.

The fact that TRY operates in a community-based market development niche that is, with regard to the business model still developing. However, TRY is able to call itself a social enterprise and also generating revenue. The business model is institutionally embedded since TRY was forced to establish partnerships with regime actors. Therefore, TRY was able to roll out their business model a lot sooner than when they hadn't opted for such partnerships. As the business model still encounters institutional barriers such as pricing barriers, and therefore, the market of community energy is still in development and needs to be nurtured. Therefore, it can be stated that TRY operates in a market development niche and that the business model was a mean to carry out the community mobilization and make renewable energy scalable and marketable on a community level. On the other hand, with large scale community mobilization in Australia, niches with business models that are running sufficiently to create revenue such as TRY's business model, might create momentum and challenge the regime. For this reason, the field level context of TRY might also be characterized as a community-based regime transformation niche. As a community niche, TRY plays a profound role in the regional mobilization of community energy groups as the community approach and thus its agency is defined by high personal engagement, strong discourses, strong community ties and hence a strong community network.



## 4.4. The Carbon Energy Fund Ireland (CEFI)

### 4.4.1. Introduction of the problem

The health sector in Ireland encountered several problems with regard to upgrading their energy infrastructure and to reduce carbon emissions. Partnerships between hospitals and contractors failed, contractors were inexperienced and there was no sense of risk ownership. The CEFI responded to these problems by introducing themselves as a vehicle that comprehensively facilitates partnerships, contractual procedures and assurance of significant carbon reduction for Irish hospitals.

### 4.4.2. Background information of the entrepreneur

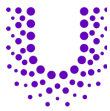
The CEF is a private organization that was set up in 2011 in the UK. After a few years of operation in the UK, the CEF moved to Ireland to become the CEFI. The Carbon Energy Fund Ireland is set up to fund, facilitate and manage the upgrade of complex energy infrastructure and energy performance contracts within the Irish health sector. Consisting of a collective groups of financial experts, legal experts, engineers and project managers, the CEFI has created a legitimate framework to guarantee the performance of contractors that fulfill the task of the implementation of energy efficiency projects in hospitals.

By setting up this framework in the Irish health sector, the CEFI has created a competitive playing field for contractors. For every project, the CEFI organizes panels for contractors that potentially match the need of the hospital. This includes feasibility studies, analyzing project needs, organizing open days in the hospital and introducing the contractor to the leadership team of the hospital. The CEFI starts the technical dialogue with the contractor to discuss the project plans and designated solutions. By acting as a market facilitator, the CEFI challenges contractors and procurement processes with regard to energy infrastructure. This is done by stimulating competition and also offer training sessions to contractors in order to help delivering the right skills for the right project.

According to the CEFI, the Irish market with regard to energy services and energy contracting can be considered as immature and inexperienced. Energy service suppliers were not experienced and there was no clear sense of responsibility in terms of risk ownership, resulting in failed projects.

*“Contractors don’t take any risks; they transfer the risks back to the public sector and the public sector doesn’t understand it, something happens, it doesn’t work, there is no budget to fix it, contracts say that it is not my fault. Then they need more money to fix it, all of a sudden the equipment sits there for 5 years and then they dump it” (Interview CEFI, 2020).*

In Ireland, partnerships between contractors and the health sector endured many frictions which resulted in the need for a facilitator and an enabler. The CEFI has created a playing field by enabling matchmaking with an emphasis on the relationship between client and the supplier. Hence, by building relationship, trust and risks issued are being mitigated. In addition, the CEFI also transfers all the risks that could potentially come along with the project to the supplier in order to prevent lack of responsibility and lack of risk ownership.



*“in September, 2017, we were kicking off a hospital project. We always organize an open day, we invite the contractors in, to meet the hospital, to walk around, have questions, it was a lot of Irish contractors at that time. It was funny, we were describing a model, risks transfer, underwriting the guaranteed savings, what the team was like, the performance and insurance piece to make sure that the contractors behaves. It was much more collaboration; the contractor was a partner, sat around the table, was viewed from the hospital as part of their own” (Interview Edel Wyse, 2020).*

#### 4.4.3. Business model innovation

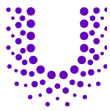
The core focus of the business model is a long term contract (15-20 years) that the hospital signs up for. Therefore, hospitals can be regarded as the **customer segment**. The construction of the **revenue model** is that the hospital pays for the service by means of a leasing contract or an on/off balance sheet. The **value proposition** is an energy infrastructure project agreement covering the design, delivery, installation, commissioning and operation for a wide range of energy upgrades. Hence, it is considered as a membership based agreement model. CEFI guarantees a significant reduction of the hospital's carbon footprint as well as significant financial savings in terms of energy costs and operational costs. The CEFI charges a fee, and ultimately provides a framework that allows for a trustworthy and reliable service to be delivered to the hospital. The **resources** that the CEFI deploys in order to deliver the value is mainly expertise, which is intertwined with a broad set of skills and experience. The CEFI's main **partner** is the Irish health sector along with contractors and private investors.

The first CEFI contract was a contract between the Dublin's Mater Hospital and VEOLIA. The aim was to reduce the hospitals carbon footprint by 81,000 tonnes, reduce the imported electricity from the national grid by 77% and delivered €26 million in financial savings by energy upgrades.

CEFI challenges the contractors to make sure that the efficiency is more than the cost of delivery, and also urges the contractor to guarantee them. If the contractor falls short, the contractor has to refund the organization. As a part of the contract, the CEFI accounts for performance and insurance mechanisms in order to authorize the contract and make sure that the contractors are compliant. In addition, the CEFI urges the contractors to innovate. When contractors introduce a new innovation and as a result, deliver more efficiency and better performance, contractors get rewarded by the CEFI.

*“Each contract is a underlying guaranteed efficiency that the contractor has to sign up to. If they want to sign up, it has to make sense to deliver. The efficiency has to be more than the cost of delivery. That is what makes it work” (Interview CEFI, 2020).*

*“Contractors need to be able to bring in something new and we need to be able to encourage them to do it in the right way. Our contract, we reward them, we do a gain share. It has to be real, it has to be true, it has to be at no other expense. As part of contract, we always do performance and insurance mechanisms, to authorize the contract, and that is something that the CEFI does, to make sure they do exactly what they said they were doing to make sure that the hospital gets what it is paying for” (Interview CEFI, 2020).*



What the CEFI considers as their unique selling point, is that they are able to fund projects that are not on the countries balance sheet. As a part of the public sector, hospitals need to do large investments when upgrading their energy infrastructure, which affects the national balance sheet. Therefore, the CEFI has set up a such a construction with their contracts that this is not the case.

*“it’s the ability for us to fund projects that are not on the country balance sheet. Which is quite unique, its one of our USP, we’ve done it in the UK for years, we’ve done it in Ireland. It’s the first time we did it in Europe”* (Interview CEFI, 2020).

#### 4.4.4. Agency

The CEFI can be defined as a market-based regime transformation niche that already enjoys a robust position with regard to institutions and the social network. The CEFI was established as a private organization in close collaboration with the Irish national health sector. Therefore, the CEFI was already aware of the rules of the game and particularly its flaws. Even though the CEFI can be defined as an institutionalized actor due to its close collaboration with the Irish national health sector, it has also positioned itself as a party that is able to define its own rules of the game.

### Resources

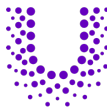
#### Entrepreneurial skills

CEFI can be regarded as a small, yet robust organization with a broad set of skills. Since CEFI works around financial constructions in order to fund projects that are capital intensive, **financial skills** are regarded critical. Being well informed about funding opportunities, investments and the financial market and how that fits in the institutional governance is essential to the core business of the CEFI.

An authorized and legitimized energy performance contract that covers a broad range of elements such as procurement, construction, feasibility, finances has to meet legal requirements. Therefore, since the CEFI sets up and manages these energy performance contracts, **legal expertise** is regarded crucial as well.

Furthermore, engineers that understand the energy regime play an important role as well. People that have the technical know-how, but also have a clear view on what the energy regime is looking for today, based on yesterday and what it will look like in the future. In order to carry out feasibility studies and to stimulate innovation for contractors, to offer training and to make sure they deliver, **engineering, technical skills** and **communication skills** are important to also transfer expertise to the contractors. Hence, the CEFI possessing these skills brings them in the right position to challenge contractors.

*“But what we have collectively, is the right expertise. We have someone who manages the financial market, works with the financial market to make sure we get the best rate. We have someone who is quite a genius, he understand contractual issues. He understands the regulations, he works all the time on the regulations. So we have our inhouse counselor. We have guys who have an appetite to do things better. The wild and the wackey. They love how they can work and see in real life. We have technicians and engineers. They are focused and speciliazed engineers”* (Interview CEFI, 2020)



Lastly, what is also emphasized by the CEFI are also the **project managers** who are able to get the right people in the room, who understands the technical, the financial and the legal/contractual elements and knows how to connect these elements.

*“You have to have people who look at multiple aspects and understanding those aspects; you have to be able to talk to a pension expert, to an engineer, a lawyer, you keep speaking them all at the same time. You have to have the ability to simplify the whole thing, bring it all together, that they can all understand individually and collectively”* (Interview CEFI, 2020).

*“The message you say to the finance director or the CEO, is going to be different than the engineer. You need to have this broader, because it’s quite complex, you need to specialize it in, if you are going to talk to an engineer how finance works, they have no idea. At an early stage you need people with a broad skill level, that covers multiple factors, and then specialize. The real skill with the CEF is the ability to bring it all together, which is the engineering, construction, finance, bringing it all together”* (Interview CEFI, 2020).

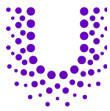
Hence, according to the CEFI, the robustness of their concept is due to the fact the CEFI has been able to bring all the skills and expertise together in one holistic framework and therefore their success can’t be deduced from one specific skill. Furthermore, what is emphasized by the CEFI, is that their success is not only defined by skills, but also by personality.

*“You also have to look into personality types of people behind the jobs, in a management role you don’t use your business skills, but personality types”* (Interview CEFI, 2020).

As also emphasized by the CEFI, it’s also important to understand the national objectives with regard to climate goals, the financial latitude and how the national public sector can maneuver within these goals. What is also relevant for the CEFI is that Ireland has been politically unstable and is in a state of financial recovery. According to the CEFI, it is therefore important to understand the national balance sheet. The CEFI emphasizes that they don’t want to impact the national balance sheet with their contracts. Hospitals are part of the public sector, and if the public sector has to do large investments, this will affect the national balance sheet. Therefore, the CEFI has set up a such a construction with their contracts that this is not the case.

### **Institutional skills**

The institutional skills that particularly come forward with the CEFI are **collaboration, timing, social skill** and **interpretation**. The CEFI is not only able to establish valuable relationship for themselves, such as relationships with the health sector, financial parties for financing, governmental relations but is also able to facilitate relationships between contractors and the Irish national health sector. Whereas the relationships between contractors and the health sector were not well developed in Ireland, they have become more stable and personal due to the open days and the matchmaking that the CEFI arranges. Furthermore, the core focus of a hospital are patients, patients delivery and not necessarily energy consumption. Therefore, according to CEFI, it is a challenge to get the right voice and the right influencer engaged in the decision making process. It is therefore emphasized by CEFI that **identifying**



**key actors** is a crucial element in the work they do. Hence, the CEFI is able to align with a heterogenous group of actors to **establish relationships** for themselves but also to **enable relationships** between other parties and stimulate partnerships.

With regard to **timing**, CEFI came to Ireland at the right time since there was a lot of 'hassle' going on with contractors and the public health sector. For this reason, the public health sector was looking for parties that could take away the burdens. Before, the CEFI had built experience in England and was looking for opportunities for business in Ireland as well. As they were establishing relationships with the health sector in Ireland, the CEFI got notified that someone from the Irish health sector was looking into their business.

*"They found out how we had done it in England, and they knew they had to speak to us. We spoke to someone of the organization and they said: well, somebody else is already looking into this, then we had a discussion and then we got in touch with the hospital, who were struggling to get a project over the line. We got in touch with them, spoke with them, then the project started to roll" (Interview CEFI, 2020).*

## Experience

### Entrepreneurial experience

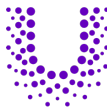
What characterizes the CEFI and also an element what makes them so successful in their framework is experience. According to the CEFI, the average age of the employees is around 55 and they all have a broad set of experience from different sectors such as the health sector, energy contracting, finance and engineering. For this reason, they know the energy regime, they know the Irish National Health Sector and therefore they are able to align with other actors around these sectors.

*"We have a mix of project experience, finance experience, investment experience, legal experience, procurement experience, we have engineers, everything in and around. Different from the typical entrepreneur business it that our average age is 55, I think. We generally have people who have been around the block for a few years. We have a flat hierarchy and we give them the freedom. Anyone has a say in making the business forward. We use their experience in trying to evolve" (Interview CEFI, 2020).*

*"A lot of business have a really good concept but no experience. They spend so much time to have the perfect structure, perfect documentation, they do this for two years before they generate their revenue. You need to mix with the people who are quite process driven to have the ability to build on open market, it's something you can't teach" (Interview CEFI, 2020).*

Furthermore, the CEFI started as a CEF in the UK, doing similar projects in the UK. Therefore, they were able to build experience before implementing their business model in Ireland. According to the CEFI, they learned a lot of lessons from their experience the UK. Especially the fact that no project is the same and that they all require a different approach. The CEFI emphasizes that they have a lot of sites in the UK, and that the lessons learned there are of great benefit to the current business of the CEFI. As a part of building up experience, the CEFI





highly values post-project evaluation. After every project, the CEFI evaluates what went wrong, what could be done better and bring that to their next project.

*“These projects take a very long time. The other lessons learned, is to dig deep and have patience because these things are not overnight success. But the contract that we have, allows you to adapt, allows variation, we do that, with energy there are new ideas and there are better things all the time”* (Interview CEFI, 2020).

Due to building up experience in the UK as an organization, and also individual experience before the set-up of the CEFI, the CEFI has also built a broad range of expertise in terms of finances, engineering, project management, legal expertise and procurement expertise. According to the CEFI, the market strategy they approach, is a knowledge based approach:

*“We write engineering pieces, write guidance, technical engineering guidance to the NHS, we put a strategy in the market how they hit zero carbon in 2050, we put people up for committees, we put people out there, we don’t sell ourselves. We do case studies, back storage of solar, we do this sort of stuff, we run the energy stuff on behalf of the professional bodies. We’re not marketing people. Marketing in the PS doesn’t really work. We bring people in, trying to make things happen”* (Interview CEFI, 2020)

Furthermore, what also characterizes the entrepreneurial skills of CEFI, is that they can be considered dynamic and agile, especially for more mature people in the business. As the CEFI states, all the employees live all over the country and therefore they have been working from home for already 6-7 years. It was not a necessity to create a traditional office culture. Instead, they have been working in coffeeshops and were on Microsoft Teams one year before COVID-19. All those elements may seem new to other companies, especially during a pandemic, but the CEFI has been doing it for years.

### **Institutional experience**

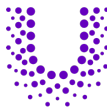
The CEFI has mainly build institutional experience in the UK, where they also worked with the health sector and therefore they were aware of the ‘rules of the game’ with regard to the health sector as an institution. The CEFI was able to set up their framework in the UK, to test it and to learn from it before they went to Ireland. By doing projects in the UK and introduce their framework there, they changed the ‘rules of the game’ with regard to energy performance contracts in the UK.

*“That’s why we went to Ireland. We were able to demonstrate how it works and what we do. Typical projects take 4 years, we did it in 9 months”* (Interview CEFI, 2020).

### **Authority**

#### **Formal authority**

The business model of the CEFI aligns with the national objectives of the Irish Government, meaning that the CEFI’s activities are also in the governmental interests and therefore one could say that the CEFI has established authority towards the government. For this reason, there is no need for the CEFI to specifically influence policy making. According to the CEFI,



the rules are there for a reason and they need to comply with them. However, the Irish Health Sector can be regarded as an institution as well and the CEFI has managed to influence the contractual procedures with regard to energy infrastructure upgrades with their business model. They also managed to facilitate the relationships between the Public Health Sector and with contractors. For this reason, one could say that they disrupted the ‘rules of the game’ with regard to the Irish Health Sector and their energy performance contracts. Having such an impact implies that the CEFI is a legitimate, authoritative party.

*“They send people to the government to see how they do it. They don’t do it, we do it”*  
(Interview CEFI, 2020).

According to the CEFI, an element that facilitates this access to decision making processes, and hence authority, is confidence. The CEFI regards confidence as a product of their experience, because they are aware of the fact that they have a successful model based on their experience.

*“We had the confidence to say that change would work because we had the experience. A proven track record”* (Interview CEFI, 2020).

Furthermore, the CEFI stresses the ‘champion’, which the CEFI regards as a voice that can convince the board. According to the CEFI, getting the attention of the board of a hospital can be difficult since, as mentioned earlier, the core focus of the hospital is patients and not energy. Therefore, in order to establish authority and to reach a certain level of influence, it is important to have a ‘champion’ to get the board’s attention and convince them to buy into the contract that the CEFI offers.

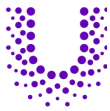
*“You need a champion, a project champion, somebody who can influence the decisionmakers to say yes or no. When you are developing and designing a scheme, you have to bring it to the organization board, you need a influencer who is able to make it happen”* (Interview CEFI, 2020)

With regard to contractors, the CEFI explained that contractors at first did not believe that the CEFI would get other contractors on board. Hence, it was hard for the CEFI to convince the contractors. However, the CEFI had the confidence to tell the contractors that if they did not want to work in the same way the CEFI works, they would go to find somebody who will.

*“One of the contractors actually said; you are never going to get Irish contractors to do that. You will not be able to do that. I said: Than you have no business being on our framework. That’s how we do things”* (Interview CEFI, 2020).

### **Informal authority**

Since the CEFI is a professional and robust organization that works within institutions, their authority can be regarded rather formal than informal.



### **Time resources**

The business model of the CEFI is a long term membership based business model that involves a 15 year or 20 year contract. Because of the membership construction, time can be regarded as a resource. It is also stressed by the CEFI that the set-up of the procedures that come along with the contracts, are time consuming procedures that are incorporated in the set-up of the business model. Therefore, the CEFI is not specifically time bound and cannot be considered as a pitfall.

Especially because the energy landscape is constantly evolving and the contracts are long-term, the CEFI challenges and stimulates contractors to innovate and anticipate on new technological developments.

### **Financial resources**

The CEFI is able to finance projects up to 150-300 million dollar, coming from private investors. The CEFI is in the financial position to fund cost intensive energy infrastructure projects and to set up membership constructions to cover these financial investments at no net costs for the health sector. For this reason, the CEFI can be regarded as a financial robust organization.

*“All that we ask is that members only use if they genuinely wish to upgrade their carbon and energy infrastructure at no net costs to themselves, and also ask if they do so, that the contract includes within its costs a contribution to our legitimate costs. The CEF fees have been benchmarked at 50% of typical feed paid by the public sector for similar type projects provided by other suppliers” (Website CEFI, 2020).*

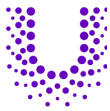
### **Discourses**

According to the CEFI, they were born out of frustration of the national health sector regarding the excessive expenditure in procuring energy performance contracts. Hence, the CEFI draws on the storyline that energy performance contracts were a hassle. As mentioned earlier, the market with regard to contractors and energy infrastructure was inexperienced and immature. There was no effective collaboration between the Health Sector and contractors and there was no sense of risk ownership.

*“Traditionally, Public Sector bodies would complete stand-alone procurements so contracts had to be purchased, consultants employed and contractors procured and once it was complete all the knowledge was lost. Then after construction the schemes typically started to underperform due to a lack of finance, contractual awareness and knowledge if things didn't go as well as expected” (Website CEFI, 2020).*

*“The general narrative is that they got tired of it. And that they want to reduce carbon and they need to reduce carbon and it doesn't cost them any money” (Interview CEFI, 2020).*

According to the CEFI, they don't have a marketing strategy as marketing is considered as ineffective in the health sector. Therefore, their strategy to communicate the storyline can be seen as more personal, by means of face to face meetings.



## Social position

### Informal

According to the CEFI, the set-up of the CEFI started together with a few acquaintances from the professional network who worked in the national health sector and had done over 10 projects. Therefore, there was an idea how business could be made more efficient. According to the CEFI, it was a process without a clear business structure and that is also where new people came in in order to structure the organization.

*“When I used to work in the private sector, I have been doing projects for the NHS, some of the guys they came and asked me if I would join them and set up a fond with anyone else as well”.*

*“You have the idea, you have a few people, and now we have 25 people in the UK and Ireland”* (Interview CEFI, 2020).

### Organizational

Bringing in complementary skills and expertise into the organization such as engineering skills, finance skills and contracting skills, the CEFI has grown into a business of 25 people.

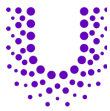
Nevertheless, the CEFI can still be regarded as a relatively small organization with regard to the work that they deliver for the Irish Health Sector. Therefore, The professional network outside the CEFI is of great significance according to the CEFI. One thing that is emphasized by the CEFI is the establishment of relationships. The CEFI has developed relationships within the private sector such as contractors and energy suppliers and relationships within the national health sector, which will be elaborated in the next part.

*“It is feet on the ground, its meeting, its interview, talking and its listening, its understanding who works in the sector, who do you need. You very quickly identify who are the drivers of change. You need the drivers of change”* (Interview CEFI, 2020)

Hence, the CEFI was able to sense which actors were important to roll out their business in Ireland. The quote above illustrates the significance of establishing relationships and also the strategies to establish relationships. The CEFI made sure that as an internal organization itself, they got the right people with the right skills a board, and also put a great amount of effort in establishing relationships outside their organization.

### Institutional

The CEFI was co-created with the Irish Department of Health. As the website of the CEFI describes: ‘The co-creation is a special purpose vehicle that allows different parts of the Public Sector and the National Health Sector to work together’ (Website CEFI, 2020). In addition, *“the CEFI employs an experienced team drawn from the NHS, National Services Scotland, National Procurement, NHS Strategic Buying Solutions, Wessex AHSN and The Countess of Chester Hospital”* (Website CEFI, 2020). Hence, the CEFI aligns with several institutional actors that are profoundly present in the health sector.



*“As part of my work, when I came back to Ireland, was to establish relationships with the health sector, so the right group again is very important that you identify the right people you get at the table” (Interview CEFI, 2020)*

Hence, it was mostly essential for the CEFI to establish relationship within the Irish health sector as their business model revolves around the health sector.

*“We approached them, found out who to speak them, and we spoke to them. Business is as simple as that, you find the right people you have to speak to. If you have the right thing to say, people will listen to you” (Interview CEFI, 2020)*

In addition to the health sector, the CEFI works as a procurement vehicle for renewable energy programs such as the Cabinet Office Public Sector Solar Scheme and also the Manchester City Council District Energy Program. Furthermore, the CEFI works with the Central Statistics Office and is taking steps to work with the National Irish Government. Since the CEFI is able to fund public projects that are not on the national balance sheet, other governmental actors in Europe are interested as well according to the CEFI.

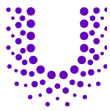
#### 4.4.5. Conclusion

##### **Agency**

CEFI's agency is strongly defined by the intellectual resources that include skills, expertise, entrepreneurial as well as institutional experience and entrepreneurial experience. With regard to entrepreneurial skills, the CEFI is characterized by profound legal skills, financial skills, engineering skills and project management skills, which also corresponds with their expertise. Furthermore, the CEFI highly prioritizes establishing relationships with influential actors, especially within the health sector. Hence, especially the organizational and institutional social position of the CEFI can be regarded as robust and therefore corresponds with social skill. Since the CEFI has managed to create partnerships for themselves and facilitate partnerships between other parties, collaboration skills are noteworthy as well. When the CEFI planned to introduce their framework in Ireland, the Irish Health sector was already looking into their business. Hence, with regard to timing and interpretation, the CEFI sensed how they could contribute effectively in upgrading the energy infrastructure in Irish hospitals.

CEFI's agency heavily resonates with their experience in the UK and also experience in working in several other sectors such as the health sector, financial sector, legal sector and engineering. As also emphasized by the CEFI, their experience contributed to their confidence in their own framework and also being able to introduce it in Ireland successfully.

The CEFI's framework aligned with the discourse that the health sector was fed up with the poor and failing procedures with regard to energy infrastructure upgrades in their hospitals. The CEFI's framework offered a solution to this problem, thus meeting the needs of the health sector. According to the CEFI, this discourse is not communicated by any form of marketing, since that is considered as not effective in the public sector. Hence, their strategy in communicating this discourse, is to engage with the influential people in the health sector in a personal way and discuss the added value.



In conclusion, the CEFI excels in skills, experience, framing discourses and has established a robust social position along with strong authority. In combination with their business model, that correlates with the CEFI's agency, the CEFI has significantly affected institutional arrangements in Ireland.

### **Institutional impact of the business model**

The CEFI can be characterized as an institutional entrepreneur due to their already visible and tangible impact on institutional arrangements in the Irish health sector. The institutional arrangements that the CEFI is addressing are rather formal by changing contractual procedures, creating partnership constructions and also setting up a playing field, they impacted the 'rules of the game'. Formal institutional arrangements in the Irish health sector with regard to energy performance contracts in the health sector were immature and actors working in the sector were unexperienced. Hence, projects with regard to the upgrade of energy infrastructure were likely to fail. In the UK the CEFI had already set the example and demonstrated the 'proof of concept', allowing the CEFI to successfully introduce their framework in Ireland. The newly established procedures set up by the CEFI also increased the environmental performance within the national health sector.

These above described formal institutional changes are likely to go hand in hand with the change of attitudes with regard to collaboration between the health sector and contractors and could thus resonate with informal institutional change.

The market is already shaped and nurtured also partly due to CEFI's experience in the UK. As a market-based regime transformation niche, CEFI's the business model is already impacting the socio-technical regime with their change of formal and informal institutions. As the CEFI challenges contractors to innovate, opportunities for technological companies emerge as well. Hence, the CEFI is not only targeting the national health sector, but also takes along other actors such as contractors and technological companies. Hence, their market-based regime transformation position allows them for heterogenous mobilization of actors on market level.

The CEFI is also a typical example that demonstrates that innovation not only comes with technology, but also strongly relies on the holistic approach of the business model. The business model of the CEFI does include technological innovation, but merely focuses on the improvement of procedures itself. By holistically focusing on the challenging embedded contractual procedures within the Irish health sector, technological innovation and social innovation is included. . Therefore, it might be the case that these types of innovations, which go beyond technological innovation and target formal and informal institutions, are decisive for regime transformation.

## 5. Discussion

The agency framework can be applied to evaluate the configurational effect of resources, networks and discourses on carrying out agency. The elements are likely to be complementary with regard to building up an actor's agency. In other words, agency is shaped by a combination of those elements. Conclusions focusing on one single aspect can thus be too limited. For this reason, all the elements have to be taken into account in order to assess an actor's agency.

Based on the results of the case study, the concepts of business model innovation and agency go hand in hand. The two concepts seem to reinforce each other profoundly, however, the relationship is not linear nor causal. As mentioned earlier, the conceptual model aims to demonstrate that agency can also be practiced without the business model, but that business model innovation always goes hand in hand with agency. Business model innovation itself by an institutional entrepreneur can already be considered as a form of agency, or requires a form of agency. For example, TRY demonstrates that agency can be practiced by means of the business model, but that agency also extends beyond

the business model in terms of community mobilization. CEFI's agency on the other hand, is strongly defined by its business model since all the activities that the CEFI performs, are tied to the business model. The case of Stedin also demonstrates that Stedin's agency is not specifically defined by the business model that it has created for households, but it also rooted in their traditional activities as a grid operator. Hence, it might be more evident that agency is defined by an actors activities in general rather than the business model itself.

Duygan et al. (2019) emphasize that "agency is always a dialogical process by and through which actors immersed in temporal passage engage with others within collectively organized contexts of action". Hence, according to the literature, agency is brought forward by certain actions of actors and is therefore not particularly defined by a business model. Actions and activities might be included in the business model but can also reach beyond the business model, as demonstrated by TRY. However, as also demonstrated in the cases, a business model can then be considered as a mean to practice agency and to work around larger scale roll out of sustainable technology and social innovation that is deemed necessary in order to make a transition succeed. Hence, business model innovation can then be defined as a reinforcing or mediating element of agency in relation to institutional change, but not a particular necessary element to carry out agency.

According to the literature, institutional change is established by a heterogenous group of actors. Therefore, an institutional entrepreneur is never a standalone actor, but is part of a

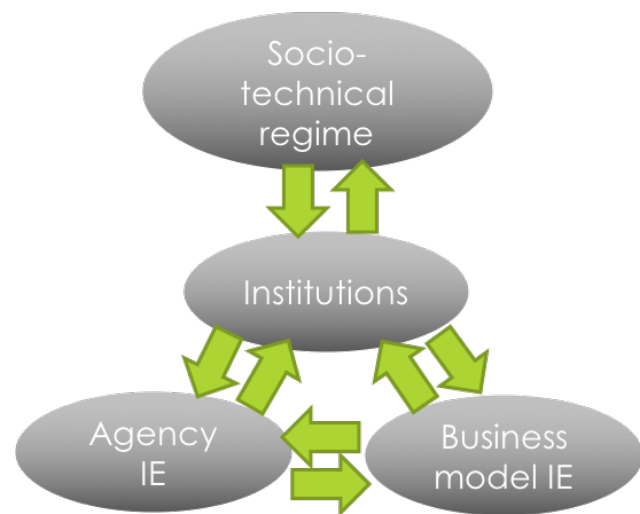
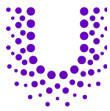


Figure 3: Conceptual model



mobilization or part of a driving force behind the mobilization. An institutional entrepreneur is thus strongly reliant on their social position and network. Skills that are addressed in the literature are social skill, establishing relationships, collaborating, creating trust, framing, timing, anticipation and interpretation. The first three skills are more network related, the last three skills are more related to external events. Elements that come forward in the cases resonates with the literature in terms of strong social positions with an emphasis on building relationships and also collaborations. Every case also demonstrates that the entrepreneurs are also reliant on other actors and that agency as well as carrying out the business model is never the work of a standalone entrepreneur.

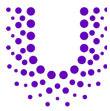
What the cases have in common, is that they all introduce new business models that can be characterized as novel ways of organizing, new ways of collaboration, strong partnerships, emerging roles and responsibilities and are endeavoring to find alternative ways of capturing value. Hence, embedded formal institutions such as technological standards and contractual procedures as well as informal institutions such as social practices, energy behavior and partnerships are challenged. The CEFI has clearly already impacted institutions with their business model on a large scale, whereas the institutional impact of TRY and Stedin still remains speculative and more undetermined. Especially the business model that Stedin has developed for household still needs work for a large scale roll out and its actual impact on institutional change may be witnessed only in the future.

All the three cases also demonstrate a strong dependence on technology. However, only technological innovation is deemed to be insufficient since the business models in the cases are also built upon social innovation as in collaborations, partnerships. It is thus the holistic business model, including social innovation and technological innovation that challenge these existing institutions. As a socio-technical regime is guided by institutions, the introduction of business models by means of agency that co-shape new institutions are then considered to be a driving force for a shift of the socio-technical regime, or a so called socio-technical transition.

Stedin, operating in a market-based regime transformation niche, is strongly dependent on commercial parties to help shape the business model and thus help shape a potential market that is in Stedin's interest. Thus, market opportunities could emerge revolving around interconnectivity between technology and energy behavior. Even though households are the most important area of concern within the construction of the business model, it is the commercial parties that can create niche momentum for a mobilization due to emerging market opportunities. This mobilization can also affect (social) housing associations and so on. Stedin can therefore be acknowledged as a co-driver of this mobilization, therefore challenging the status quo of the current energy system. Looking back on the MLP of Geels (2002), Stedin could be part of a force that puts pressure on the socio-technical regime and its embedded institutions with their business model and the emerging niche market that is currently being shaped.

To offer a viable business model for households, Stedin firstly needs to engage and collaborate with households. Other than that, Stedin is forced to collaborate with other actors such as software companies and technology companies that develop the algorithms and deliver the hardware as Stedin is limited in their role as a grid operator. Hence, Stedin's agency





revolves around sensing, project leadership, collaboration, establishing relationships, future anticipation and a strong organizational and institutional network. Especially collaboration and establishing relationships are important for Stedin's agency in a market-based regime transformation niche. Furthermore, the informal network of households also gains importance here within the business model itself. Authority and institutional experience are noteworthy elements since Stedin has a clear view on what needs to be done for energy transition to succeed and thus the role of commercial parties. Furthermore, Stedin's financial resources need to be mentioned too since Stedin financed the pilot along with the technology. Hence, business opportunities for ABB and ILeco/Enervalis were created.

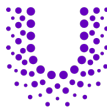
TRY, a community based regime transformation niche and at the same time still a niche in development, plays a significant role in the community mobilization that is taking place in North-East Victoria. The amount of community groups is growing and interestingly, the pressure of these energy groups on the socio-technical regime become slightly visible as regime actors, such as Mondo, start to acknowledge these groups and aim to collaborate with these groups. Regime actors with ambitions to, for example, build solar fields realize that they need community groups in order to realize their ambitions. Vice versa, TRY realized that collaborating with regime actors would give them more security in their business activities. Hence, interdependencies between niche and regime are emerging, offering opportune links for niches to break through on regime level.

TRY's agency can be characterized by the community approach that encompasses high personal engagement, strong discourses, and a robust community network. In order to establish this network, skills such as social skill, collaboration and building relationships and establishing trust come into play. Furthermore, to give meaning and to frame a certain discourses and to make other communities follow, skills such as framing and also informal authority plays a role.

The CEFI has already impacted institutions and developed and nurtured the market. Hence, the CEFI can be considered a market-based regime transformation niche as the socio-technical regime where the national health sector is rooted in, is challenged. As the national health sector can be considered as a large institution and hospitals play an important role in the health sector, the institutional impact of the CEFI is strong and also large scale compared to the other two cases.

Especially in terms of partnerships and contractual procedures, the CEFI has defined new 'rules of the game' with their business model. The CEFI's roll out is not only targeting the health sector, but also includes contractors and technological companies that play a role in their business model. As the CEFI challenges these actors, new technological opportunities might emerge as well for other commercial parties. Hence, the CEFI is a significant driving force in setting the stage for better environmental performances for hospitals and also contractual procedures within the Irish national health sector. The CEFI might also pave the way for entrepreneurs operating in other sectors to, for example, establish better environmental performances and challenge embedded procedures.

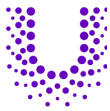
The CEFI has started in the UK, gaining experience and also proved their concept. The next step was to roll out their business model in Ireland. On an international level, the work of the CEFI is being noticed as well. Hence it might be the case that the CEFI further expands to other countries outside Great Britain.



As mentioned earlier, CEFI's agency is characterized by experience, a large set of entrepreneurial skills as well as institutional skills. The CEFI's has put significant effort in establishing relationships with legitimate partners on an institutional level, and also created strong partnerships with contractors. The discourse of poor procedures was strongly felt by the Irish national health sector, and the CEFI build upon this discourse with their business model. All the elements of CEFI's agency seem to reinforce each other greatly, as in the broad set of skills, the discourses, and the robust social position.

## 5.2. Overview of results per case

	Stedin	Yackadandah	CEFI
<b>Field level context</b>	Market-based regime transformation / market development	Community-based regime transformation / market development	Market-based regime transformation
<b>Business model innovation</b>	BM seeks value in flexibility, social practices and also energy behavior	BM seeks value in energy autonomy and households as resource, energy behavior, social practices and regime / niche collaborations	BM seeks value in higher performance standards of contractors, collaborations between actors and carbon reduction
<b>Entrepreneurial skills</b>	Project management skills, technical skills, IT skills	Project management, business management, interpersonal skills	Project management, legal expertise, finance,
<b>Institutional skills</b>	Anticipation, collaboration, networking	Anticipation, collaboration, networking, framing, building trust, establishing relationships	collaboration, establishing relationships, anticipation, timing
<b>Entrepreneurial experience</b>	Experience in pilots, few experience with engaging in households	Few entrepreneurial experience	Strong entrepreneurial experience
<b>Institutional experience</b>	Strong institutional experience	Few institutional experience	Strong institutional experience
<b>Informal authority</b>	Few informal authority towards households, might affects roll out business model	Strong informal authority towards the community energy groups	Few informal authority but might not affect roll out business model
<b>Formal authority</b>	Strong formal authority towards institutions and businesses	Might gain in formal authority due to interests from regime actors in community energy groups	Strong formal authority towards institutions and businesses
<b>Time resources</b>	Under pressure	Few time resources to perform additional activities	Sufficient time resources
<b>Financial resources</b>	Strong financial resources	Few financial resources	Strong financial resources
<b>Discourses</b>	No collective shared discourse	Collective shared discourse of taking action against climate change and energy authority	Collective shared discourse of frustration with regard to poorly performed energy infrastructure projects in the Irish national health sector
<b>Social network</b>	Organizational, institutional	Informal, organizational	Organizational, institutional



## 6. Conclusion

In this section, an outline of conclusions will be presented by answering the research questions. As mentioned in the introduction, this study aimed to answer the following research questions:

*What does agency entail for institutional entrepreneurs running a business model in the energy transition and what is the role of agency in this context?*

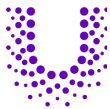
- *What are the resources that an institutional entrepreneur running a business model in the energy transition deploys and what is the role of these resources?*
- *What are the discourses that institutional entrepreneurs running a business model in the energy transition build upon and what is the role of these discourses?*
- *What is the social position of institutional entrepreneurs running a business model in the energy transition and what is the role of this social position?*

The cases, including the business model, vary to a great extent and therefore take several positions in the entrepreneurial scope. For this reason, the cases are not necessarily comparable but can inform each other's analysis. Every case is defined by its own distinct entrepreneurial niche context and therefore illustrates unique characteristics with regard to agency.

### Resources

All three initiatives demonstrate that agency is constituted by a great set of basic **entrepreneurial skills** such as **technical skills**, **finance skills** and **project management skills**. However, TRY's skills were limited due to the lack of financial and time resources. With regard to **institutional skills**, all three enterprises demonstrate prominent **collaboration** and **network skills**, which also goes hand in hand with a robust **social network** of the enterprises. Furthermore, what is stressed by especially CEFI and Indigo Power, is 'finding the right people'. Therefore, **establishing relationships** can be considered as a significant skill in agency that comes along with building the social network. Although every case anticipates on future developments with regard to the energy landscape, especially **anticipation skills** are relevant in Stedin's and Yackandandah's case. Stedin has to anticipate strongly on electrification and peak events with regard to their infrastructure and Yackandandah is anticipating on black-outs and bush fires that happen on a regular basis in Australia.

Assessing the experience of the entrepreneurs, experience in various sectors such as the financial sector, electricity sector, legal sector and also entrepreneurial experience such as experience in project management seem to be important constituting elements of the resources and therefore of agency. Whereas the CEFI was most characterized by experience, TRY was significantly lacking experience. Stedin was lacking experience in terms of household engagement, but was not lacking experience in managing pilots and thus pioneering in the energy landscape. With regard to authority, both informal as formal authority seems to be significant, depending on the activities of the entrepreneur. In terms of economic resources, robust financial resources are essential. However, for a large scale rollout of the business model, a strong developed revenue model is essential.



## Discourses

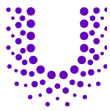
Indigo Power and CEFI both build upon collectively perceived discourses in their agency. In both cases, the business model aligns with a narrative that is rooted in frustration in the health sector (CEFI) or frictions in the electricity sector (TRY) and also align with the narrative with regard to climate change and the reduction of carbon. Both business model and additional activities of the entrepreneurs offer a solution to these frustrations and frictions. TRY emphasizes the public gatherings that were essential in sharing the story, and that it was also one of their core qualities, which also directly correlates to skills. CEFI stresses that ‘finding the right people to talk to’ is one of their main strategies and can be seen to constitute a strong element of creating agency.

However, in Stedin’s case, the discourse is not necessarily shared on a household level. The discourse is mainly in Stedin’s interests and indirectly a public interest since Stedin is performing a public task. For households, there is not a sense of urgency to take certain action for the sake of the energy transition. Therefore, Stedin is still searching for the right discourse to engage with households and also to motivate them to participate. However, there might be two types of discourses in the case of Stedin. The discourse for commercial parties referring to potential market opportunities that are looming is a different discourse than it is for households. Since these commercial parties are important for mobilization and market nurturing, this discourse might even be more significant in Stedin’s agency.

## Social position

All of the three cases demonstrate agency is carried out by a strong social position that is characterized by partnerships with heterogenous actors. As mentioned earlier, these strong social position are most likely in line with the institutional skills as all the initiatives demonstrated that finding the right people and collaborate with them was essential. The social network of TRY can be considered to be informal, based on strong community ties whereas the network of the CEFI and also Stedin were considered more organizational and institutional. All of the three cases find themselves in different niches contexts which hence resonates with their varying social positions. An interesting element is however, that TRY is partnering up with regime actors, meaning that TRY might also slightly shift to an organizational network.

Hence, agency is defined by robust social position depending on the niche context, along with a collectively shared discourse and the resources to develop this social position and frame these discourses. Also, a strong discourse even might compensate the lack of certain economic resources as shown in the case of TRY. As demonstrated in the cases, the elements seem to reinforce each other strongly and therefore it remains complex to determine the most defining elements in agency.



## 7. Limitations

Methodically, given the broad scope of the agency framework and also the time frame of this study, it was a challenge to fully cover multidimensional concepts such as the social network, discourses and resources. Therefore, exact conclusions with regard to what elements constitutes agency of a certain enterprise, remain modest. For example, time was limited to fully cover the social network and also focus on the heterogeneity of the network, the actors and its influence, its establishment, time frame of the establishment. For example, a more detailed assessment of an actor's network can be done by means of a social network analysis (SNA). An SNA can identify relational patterns, determining key actors, their embeddedness and their role in networks (Prell, 2012).

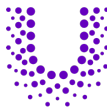
Furthermore, area of concern is the application of the framework and its overlap in operationalization, especially with non-material resources such as skills, authority and expertise. For example, expertise might overlap with experience and skills, and assessing social skill might overlap the social network. In addition, distinguishing formal and informal elements can be regarded an area of concern as well since the border between formal and informal remains abstract. In the framework, it is not well covered when an informal activity becomes a formal activity and when informal authority runs into formal authority.

Another issue that emerges along with the broad scope of the framework, is how to determine the strength of an actor's agency and their institutional impact. As agency is a relational concept and hence is relative to institutional change as well formally as informally, this study focused on the elements behind agency in a explorative form. Therefore, by also looking at the business model, it is assumed that the enterprise might potentially have institutional impact without thoroughly assessing its institutional impact itself. Institutional impact as described in this study thus (partly) remains speculative and might only be witnessed in the future

A starting point to assess formal institutional impact might be decision or policy arrangements that include setting of technology standard, infrastructure investments, subsidy schemes and revision of rules and regulations. More informal, less quantifiable institutional arrangements might be collaborations, roles and responsibilities and social practices.

In addition, the strengths of one actor's agency might also be a product of personality or charisma and not necessarily skills. These elements were not covered in the agency framework and therefore entrepreneurial and institutional skills might not be sufficient in studying an actors capabilities in reconfiguring institutional arrangements.

The last area of concern in this study is the amount of case studies. Three cases have been analyzed, whereas the aim was to analyze four to five cases. This is due to time limitations and also responsiveness of the target group.



## 8. Recommendations

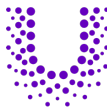
Translating the agency insights in institutional entrepreneurship to practical guidelines for, for example, policy makers, it has thus to be acknowledged that all elements need to be targeted and that focusing only resources will most likely not be sufficient in order to increase the agency of entrepreneurs and empowering them for institutional change. The basis of institutional entrepreneurs is that they know how to maneuver within insecure, complex and insecure surroundings of the energy transition and know how to build a business model around it. All of the business models demonstrate that solely technological innovation is not sufficient. Therefore, more 'holistic' innovation, including social innovation is something what needs to be stimulated and thus requires a breeding ground. This breeding ground can include safe spaces to experiment and also, for example, the facilitation or institutional skills development. Grid operators could play a leading role here, since they seem to have a clear view on the challenges energy transition, strong resources and low commercial interests. Pilots from grid operators could function as a learning environment for entrepreneurs, which thus needs to be stimulated by policy makers.

Other policy recommendations with regard to facilitation of innovation to accelerate the energy transition in the Netherlands would be a revision of roles and responsibilities, especially for grid operators. Privacy for households and device usage that are connected to the internet might in the future become an topic of interest and therefore, policy makers could already look into the of rules and regulations revolving around household privacy and their device usage. The Dutch commercial energy landscape is highly competitive with low margins. Therefore, especially for smaller energy retailers, there are limited financial resources to invest in pilots/experiments when it is still unknown whether those activities are lucrative on the long run. This might also impede innovation and therefore be in conflict with the sustainability goals of the energy transition. Hence, more 'safe spaces' to experiment is deemed crucial.

As also touched upon in the discussion, the agency framework can be regarded as a broad framework, including a great set of intertwined elements. In order to gain more specific and in depth insights in each element, the elements can also be studied individually. Therefore, recommendations for further empirical research would be to further zoom into the social network of the enterprises and its establishment, the resources of the enterprise or the usage and framing of the discourses. Another step could be to explore how agency is constructed, and how the elements intertwine with each other (for example: what is the relation between social skill and a robust social network and the framing of discourses?).

Furthermore, entrepreneurial characteristics such as personality and charisma might play a role in agency as well. Since those elements have not been covered in this study, they might be an interest area for further research on entrepreneurial agency.

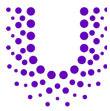
Lastly, an area of interest might be the institutional impact of a business model or entrepreneurial endeavors. Whereas this study focused more on the agency and hence the actions of the enterprise and study enterprises with potential institutional impact, the actual institutional impact has remained abstract and speculative.



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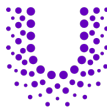
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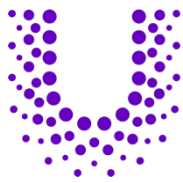
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User-Centred  
Energy Systems

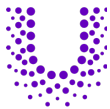


# Appendices

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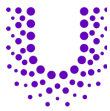
**November 2020**

Fenna den Hartog



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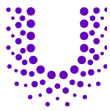
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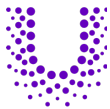
# Appendix 1: Operationalization scheme of key concepts

## Agency

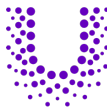
Concept		Research method	
<b>Entrepreneurial skills</b> <b>(Hatthakiiphong &amp; Ting, 2019)</b>  Skills that are needed to run a business that thrives for at least eight years	<b>Technical skills</b>	Communication, environment monitoring, problem solving, technological implementation and use	Desk study / interview  Q: Which technical skills were most relevant for the entrepreneur to set up the initiative / enterprise?  Q: Why were these technical skills relevant for the entrepreneur
	<b>Business management skills</b>	Planning and goal setting, decision making, human resource management, marketing, finance, accounting, customer relations	Q: Which business management skills, such as marketing, finance, accounting were most relevant for the entrepreneur to set up the initiative / enterprise?  Q: Why were these business management skills relevant for the entrepreneur
	<b>Personal entrepreneurial skills</b>	Self-control and discipline, risk management, innovation, persistence, leadership, organizing	Q: Which personal entrepreneurial skills were most relevant for the entrepreneur to set up the initiative?  Q: Why were these personal entrepreneurial skills relevant for the entrepreneur?



Concept		Research method	
<b>Institutional skills</b> (Mahzouni, 2019) (Heiskranen, et al., 2019) (Gölgeci, et al., 2017) (Battilana, et al., 2017) (Garud, et al., 2007)	Social skill	<p>Using empathy in order to select the most appropriate strategy and tactic to mobilize allies, being able to read people and environments</p> <p>Cultivating and maintaining relationships with decision makers and other important actors in the field</p>	<p>Desk study / interview</p> <p>Q: How did the entrepreneur gain insight in the needs of the stakeholders? How were those needs met by the entrepreneur? What was the strategy?</p> <p>Q: What were the most valuable relationships in setting up the initiative/enterprise? How were these relationships established?</p>
	Interpretation	Interpret opportunity structures of institutional environments and interpret actions of others in the field	<p>Q: Which opportunities in the field/institutional environment did the entrepreneur encounter?</p> <p>Q: Why did the entrepreneur interpret this as an opportunity?</p>
	Timing	Goes hand in hand with interpretation: recognize favorable conditions coming together and ultimately taking actions where a window of opportunity arises that makes disruption of an old institution favorable	Q: Did timing play a role in this initiative for the entrepreneur? Why / why not? Was there a relationship with the enabling factors (previous question)
	Collaboration	Bridging dispersed stakeholders, establishing	Q: How multidiverse is the group of stakeholders that

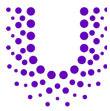


		trust amongst different professional backgrounds	are engaged with the initiative / enterprise?
	Sense making	Legitimizing discourses and vocabularies in order to reach a certain group of people	Q: How were they brought together by the entrepreneur?
		Identifying and offer common meanings and identities	Q: Which narrative is used by the entrepreneur to convince the people to participate? Q: How is it communicated by the entrepreneur?



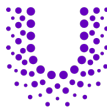
Concept		Research method	
<p><b>Experience (Duygan, et al., 2019)</b></p> <p>Experience in working in a particular field, or experience in a particular setting or activities that is relevant regarding setting up the initiative or enterprise</p>	<p><b>Institutional experience</b></p>	<p>Experience in engaging in (local) institutions</p>	<p>Desk study, interview</p> <p>Q: Did the entrepreneur have experience in engaging in institutions?</p>
	<p><b>Entrepreneurial experience</b></p>	<p>Experience in setting up/organizing an initiative</p>	<p>Q: What skills or knowledge was lacking in setting up this initiative?</p> <p>Q: Did the entrepreneur possess a form of formal authority that facilitated the set-up of the initiative or enterprise?</p> <p>Q: Were there political constraints that impeded the set-up of the initiative or enterprise?</p> <p>Q: Did the entrepreneur possess a form of informal authority that facilitated the set-up of the initiative or enterprise? Why?</p> <p>Q: Were there informal constraints that impeded the set-up of the initiative or enterprise? Why?</p>
<p><b>Formal authority</b></p> <p>Formal authority refers to politico-judicial resources that “facilitate the actor’s access to decision or policy-making venues or political instruments” (Duygan, et al., 2019)</p>			
<p><b>Informal authority</b></p> <p>Informal authority refers to informal means that facilitate the actor’s power to make informal decisions</p>			
<p><b>Time resources</b></p> <p>Is the business model time bound?</p>			<p>Was there enough time to roll out the business model? More or less than anticipated?</p>





Time that was invested to roll out the business model			
<b>Financial resources</b> Financial robustness of the organization			Were there enough financial resources to roll out the business model? More or less than anticipated?

<b>Concept</b>	
<b>Discourses</b>  Propagated narratives or storylines that contain elements of the actor's beliefs, interests, expectations and vision to construct meaning and re-order of understanding of a certain phenomenon (Duygan et al., 2019)	Q: What was the phenomenon that the entrepreneur wanted to address/tackle with the initiative/enterprise?  Q: What was the used storyline?  Q: How was the storyline communicated?



Concept	Research method		
<p><b>Social network</b></p> <p>Social relations with actors resulting in a sufficient distribution of competence for strategic agency  <b>(Duygan, et al., 2019)</b>  <b>(Mahzouni, 2019)</b></p>	<p><b>Informal</b></p>	<p>Aligning with informal actors (family, relatives, friends)</p>	<p>Desk study / interview</p> <p>Q: What were the relevant social relations on an informal level? (family, friends, relatives)</p> <p>Why were they relevant?</p> <p>How important were those social relations?</p>
	<p><b>Organizational</b></p>	<p>Aligning with networks within defined socio-spatial boundaries such as a neighbourhood or rural community</p>	<p>Q: What were the relevant social relations on a formal, community level?</p> <p>Q: Why were they relevant?</p> <p>How important were those social relations?</p>
	<p><b>Institutional</b></p>	<p>Aligning with formal organisations and legitimized actors that are engaged in making laws and policies</p>	<p>Q: What were the relevant social relations on an institutional level? (e.g local politicians)</p> <p>Q: Why were those relations relevant?</p> <p>Q: How important were those social relations?</p>

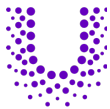


## Business model

As mentioned earlier, the business model will be analyzed separately from the concept of agency. The business model of the initiative or enterprise will be analyzed according to the business model wheel that focuses on business model innovation (Mandour & Brees, 2013). Four main drivers are identified here:

- Customer segment & relation
- Value Proposition & channels
- Revenue model
- Resources & partners

Concept			Research method
<b>Business model</b>  A description of how an organization works, how it creates and captures value for its stakeholders. A business model can be regarded as both a cognitive phenomenon as well as built on the material aspects (Bidmon & Knab, 2018) (Tikkanen et al., 2005:789)	<b>Customer segment &amp; relation</b>	Refers to the customer and the relationship with the customer is maintained	Desk study / interviews  Q: To whom is the value delivered and what is the relationship with that customer?
	<b>Value Proposition &amp; channels</b>	The value that is offered to the customer and the means to deliver that value	Q: What is the offer and how is it delivered?
	<b>Revenue model</b>	Regarding service innovation, three innovative revenue models are identified: <ul style="list-style-type: none"> <li>- Fee for service</li> <li>- Revenue share model</li> <li>- Leasing</li> </ul>	Q: How is the value captured?  Q: How is the revenue model constructed?
	<b>Resources &amp; partners</b>		
	<b>Resources en means uitleggen</b>	Assets and partners that the entrepreneur needs to deploy in order to deliver the value and to function effectively	Q: What are the means that are needed to produce and deliver the value?  Q: Which partners do you need to deliver the value?



## Appendix 2: Interview protocol

General questions, not adjusted yet to the specific cases and persons.

### Skills

Q: Which technical skills were most relevant for the entrepreneur to set up the initiative / enterprise?

Q: Why were these technical skills relevant for the entrepreneur

Q: Which business management skills, such as marketing, finance, accounting were most relevant for the entrepreneur to set up the initiative / enterprise?

Q: Why were these business management skills relevant for the entrepreneur

Q: Which personal entrepreneurial skills were most relevant for the entrepreneur to set up the initiative?

Q: Why were these personal entrepreneurial skills relevant for the entrepreneur?

Q: How did the entrepreneur gain insight in the needs of the stakeholders? How were those needs met by the entrepreneur? What was the strategy?

Q: What were the most valuable relationships in setting up the initiative/enterprise? How were these relationships established?

Q: Which opportunities in the field/institutional environment did the entrepreneur encounter?

Q: Why did the entrepreneur interpret this as an opportunity?

Q: Did timing play a role in this initiative for the entrepreneur? Why / why not? Was there a relationship with the enabling factors (previous question)

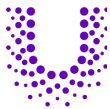
Q: How multidiverse is the group of stakeholders that are engaged with the initiative / enterprise?

Q: How were they brought together by the entrepreneur?

Q: Which narrative is used by the entrepreneur to convince the people to participate?

Q: How is it communicated by the entrepreneur?

Q: What skills or knowledge was lacking in setting up this initiative?



Q: Did the entrepreneur possess a form of formal authority that facilitated the set-up of the initiative or enterprise?

Q: Were there political constraints that impeded the set-up of the initiative or enterprise?

### **Authority**

Q: Did the entrepreneur possess a form of informal authority that facilitated the set-up of the initiative or enterprise? Why?

Q: Were there informal constraints that impeded the set-up of the initiative or enterprise? Why?

Q: Was there enough time to roll out the business model? More or less than anticipated?

### **Discourses**

Q: What was the phenomenon that the entrepreneur wanted to address/tackle with the initiative/enterprise?

Q: What was the used storyline?

Q: How was the storyline communicated?

### **Social position**

Q: What were the relevant social relations on an informal level? (family, friends, relatives)

Q: Why were they relevant?

Q: How important were those social relations?

Q: What were the relevant social relations on a formal, community level?

Q: Why were they relevant?

Q: How important were those social relations?

Q: What were the relevant social relations on an institutional level? (e.g. local politicians)

Q: Why were those relations relevant?

Q: How important were those social relations?



## **Business model**

Q: To whom is the value delivered and what is the relationship with that customer?

Q: What is the offer and how is it delivered?

Q: How is the value captured?

Q: How is the revenue model constructed?

Q: What are the means that are needed to produce and deliver the value?

Q: Which partners to you need to deliver the value?

## Appendix 3: Transcript interviews

Entrepreneurial skills/social network

Institutional skills

Social skill / network

Experience: formal/informal

Authority

Discours

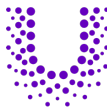
Institutional barriers

Time/money

### Interview 1: Arjen Zuiderduijn

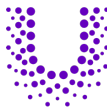
Related to case: LEF Hoog Dalem / Stedin

Question	Answer
Welke technische skills waren vooral relevant bij Hoog Dalem 2.0	Technische skills, je hebt natuurlijk <b>de blockchain</b> , we wilden weten hoe ... is deze technologie nou. We wilden ook gewoon leren en dat is eigenlijk geen doel an sich, maar wel interessant om dat te volgen. En dat zijn wel voornamelijk <b>IT skills</b> . We hebben een landschap gebouwd van applicaties die modulair is opgebouwd. Iedere applicatie kan je weer lostrekken en invoegen. Dat willen we ook open source gaan aanbieden. Je ziet heel erg veel IT opmerkingen, dus open source, modulair landschap, 1 programmeertaal die standaard is, <b>dus IT is wel een cruciale skill</b> op de achtergrond, om de hele back end maar ook de front end goed te kunnen bouwen. <b>Een andere skill</b> is natuurlijk <b>elektriciteitsmanagement</b> , dus gewoon snappen; hoe kan je het beste capaciteit berekenen; hoe hou je in de gaten hoe het hele topologische netwerk in elkaar zit en hoe verhoudt zich dat tot elkaar. Dus als je een bepaalde marktplaats hebt dan wil ik niet hebben dat ik een impuls erin stuur van jongens, kan je nu alsjeblieft je batterij opladen en als iemand dan aan de andere kant zn batterij gaat opladen en dan alsnog die hele kabel in het rood trekt. Want dan heb je een tegengesteld effect; dat wil je niet dus dat is van bottum up een goede aanpak.
Andere skills	<b>Communicatie skills: mensen meenemen: je stakeholders, press releases, nieuwsbrieven, community challenges.</b> F: en doet Stedin dat zelf, of doen jullie dat met andere partners? A: Ja dat doen we met andere partners, <b>hardware</b> is natuurlijk ook nog een belangrijke <b>skill</b> , om dat te enablen. Dat doen we met andere <b>partners</b> : dus ILeco, voorheen enervalis, die doet de Software. Ze hebben twee doelen: ze zijn partner in het geheel en ze bieden de user interface aan, dus de website waar je als bewoner kan zien wat je energieprofiel is, wat wordt je energieprofiel, zodat je kan

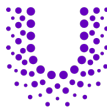


	<p>forecasten, en challenges zichtbaar maken. En voor ons zijn ze leverancier: dus voor ons ontwikkelen ze echt applicaties voor Stedin, die we dan straks open source gaan aanbieden, zodat we dit ook buiten Hoog Dalem kunnen repliceren. ABB doet de hardware ontwikkeling; zorgt er ook voor dat het allemaal gewoon werkt. Ze gaan langs de deuren om de batterijen te checken, om de smart energy modules te checken. Die leest de slimme meter uit en ie weet continu wat het gebruik is. Die kan ook jouw flexibele assets, dus warmtepomp, boiler, je wasmachines, je witgoed, en de toekomst misschien je auto, om op te laden of om te ontladen.</p>
<p>Hoe hebben jullie inzicht gekregen in de behoefte van de bewoners?</p>	<p>Goeie vraag, dat is het communicatie stuk. In het begin hebben we een enquête gehad, maar ook een aantal bewoners avonden, doen we nog steeds trouwens, maar nu via teams, om vooral te kijken en te beproeven; wat is jullie behoefte. En onze aanname lag op het feit dat het financieel was; we hebben zonnepanelen, elektrische autos en we zien met de zonnepanelen dat het wordt versoberd, dus dat de business case onder druk staat en dat mensen naar alternatieven zochten. Dat is niet het geval. In de eerste instantie was het heel erg; we willen energie in de wijk halen. En laten merkten we aan een interview met de klant, dat ze het ook wel heel tof vinden om te pionieren in het energielandschap. Het is iets waar ze vertrouwen in hebben, waar ze geloof in hebben. Dat is heel sterk, en als je de Gkse courant leest, geeft ook iemand aan dat het heel trots gevoel heeft dat ik in de praktijk heb meegedaan.</p>
<p>Wat waren de meest waardevolle relaties bij het initiatief / stakeholders</p>	<p>De meest waardevolle relaties blijven in de eerste instantie natuurlijk de eindklant. Dat je het in een gesimuleerde omgeving doet, laagdrempelig. Vond het wel heel grappig dat een van de bewoners niet heel technisch begaafd is, maar wel de juiste vragen wist de stellen. En dat is heel waardevol. Ze hield iedereen bij de les. En ook inspiratie van Enervalis/Ileco, dat is een partij die er echt voor wil gaan, ook nieuwe wijken aandraagt, en ook tenders wint en subsidies daaraan verbindt, dan word je continu scherp gehouden, want wat we hier in Hoog Dalem doen is echt repliceerbaar. Nee het is echt iets wat schaalbaar is en waar behoefte aan is op de markt. Dus dat is leuk en interessant. Een andere partij is hier opgewekt; een brancheorganisatie voor energiecooperaties; zij bieden een platform voor energiecooperaties om vragen te stellen en te inspireren en geïnspireerd te worden. Technische deel, energy web foundation, dat is de speler waarmee we de blockchain hebben opgezet. Daarvan zie je ook waarvan de use cases, blockchain is eigenlijk een tool die zoekt op problemen. Niet andersom, het heeft potentie als je daar een goeie use case op hebt. Je ziet nu dat het interessant wordt, dat andere netbeheerders, de Tennets van deze wereld, ook laten zien dat er heel veel waarde in het flexibel vermogen zit. En ook dat BMW en Tesla mee willen gaan doen, en</p>





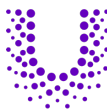
	<p>ook dat grote warmtepompleveranciers mee willen gaan doen. Dus er is een beweging gaande.</p>
<p>Waren er ook kansen, op institutioneel niveau, of in jullie omgeving die zich voordeden?</p>	<p>De grootste kans is de clean energy package uit Brussel, artikel 16 uit mijn hoofd, ze willen de energy communities en de energy individuals willen ze enablen om aan de slag te gaan, om de volgende stap te nemen. Iedere lidstaat mag het op eigen manier interpreteren, dat is EU zegmaar, of Brussel, maar het laat wel zien, wat vaak als een instituut wordt gezien, eigenlijk op dit dossier al behoorlijk voorruit loopt, en voorziet dat hier een markt gaat ontstaan, en die wil de eindgebruiker eigenlijk aansporen en wetgevingstechnisch de vrijheid geven om dit te gaan doen, en daarmee ook landen dwingen om deze interpretatie te gaan inkleuren. Hoe zorg je dat de eindgebruiker aan de slag kan; want nu merk je dat de eindgebruiker moet energieleverancier worden, legal entity zijn, bepaalde verantwoordelijkheid nemen, balans verantwoordelijke zijn, heel scala van beperkingen, die proberen zij makkelijker te maken, te versnipperen. En dat vind ik heel tof. F: En is dat dan meer in de vorm van geld of meer in de vorm van wet en regelgeving? A: Wet en regelgeving. F: dus als jij als initiatief veel meer vrijheid krijgt. A: Ja. F: en geldt dit dan voor iedereen of moet je dan weer aan bepaalde eisen voldoen. A: dat is het mooie van dit soort dingen, je mag niet discrimineren. Maar het blijft politiek, en er zit een interpretatie aan vast. Als italie zegt; we doen er niks mee, ook prima. Het is nog weerbarstig. Nederland is er nog mee bezig, ik weet dat ACM, die kijkt hiernaar. Want wat betekent dit dan; moeten we iets met tarieven doen, mag de netbeheerder hier wat mee of niet. Die zit hier echt naar te kijken want je moet het landschap gaan enablen, maar wat houdt dat dan concreet in? En dat proberen zij verder te vertalen naar iets wat past binnen alle kaders, dus je mag niet discrimineren, het moet makkelijk uitlegbaar zijn; al die dingen daar moeten zij naar kijken en daarvoor doen zij een aantal experimentne. Bijvoorbeeld RVO en TKI; instanties die gaan over de subsidiepot in Nederland. Er wordt gekeken naar welke subsidies gaan we dan toekennen, die dan weer tot inspiratie of tot bewijs van de business case leidt, de maatschappelijk business case op dit dossier. Dus, wat nou als we een buurtbatterij gaan doen; heel concreet. Wat betekent dat dan voor het net, de maatschappelijke kosten, maar wat betekent dat voor de buurt. Of als we alles opslaan in waterstof, wat gebeurt er dan. Er wordt gekeken naar alle sectoren, dus residentieel, agrarisch, industrieel, zware industrie, welke proeven kunnen we doen om aan de ene kant duurzaamheid te promoten en aan de andere kant, energiestromen, maatschappelijke duurzaamheid te waarborgen.</p>
<p>Speelt een bepaalde timing een rol?</p>	<p>Timing is cruciaal; we zien nu een aantal initiatieven zien, waaronder dus CEP, maar ook het equite platform van Tennet, die is met Tesla en BMW aan het opbouwen zijn, die laten zien dat er stappen genomen worden. Er is echt een beweging gaande; dit laat ons ook</p>



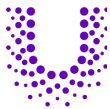
	<p>zien, en ook tot op raad van bestuursniveau aan toe, dat hier iets mee moet gebeuren. Dat we hier als netbeheerder een antwoord op moeten gaan formuleren, en dat allicht de waarde van flexibel vermogen hoger is dan initieel is ingeschat. Daar moet je goede afspraken over gaan maken, maar wat je ten alle tijden wil voorkomen is dat je met Tennet gaat vechten om flexibel vermogen; ik wil congestie gaan voorkomen als netbeheerder en Tennet wil het net balanceren; daar kan de klant van winnen, die kan ons tegen elkaar uitspelen, dus dat moeten we zien te voorkomen. Iedere kans heeft ook een risico.</p> <p>F: beweging gaande, van bedrijven, maar doet de overheid hier ook aan mee? A: Overheid enabled heel veel, subsidies ook de lobby natuurlijk daaromheen. De brieven van Wiebes, dan zie je heel veel blogs en interpretaties daarvan. Het loopt hand in hand denk ik, wat dat betreft.</p> <p>Project Bleiswijk: van de week heeft RVO voor het eerst een keer ingebeld, na een jaar lang actief te zijn, na een pilot. En je merkt dat de houding is veranderd. Vroeger had je het gevoel dat je je moest verdedigen tegenover RVO vanwege de pot geld die was vrijgemaakt, maar nu wil RVO weten wat de problemen zijn en kan ik daarin helpen als RVO. Zijn er initiatieven die deze problemen ook hebben gehad, en die zijn getackeld, en kan ik die aan elkaar verbinden. Misschien dat het incidenteel was, maar hoe de RVO dit heeft aangepakt, vond ik een compliment waard.</p>
Hoe multidivers is de club qua expertise?	<p>Wat we doen is niet alleen tech tech, het zwaar beleid, de hoge strategie mannen die bij elkaar komen, die proberen we wel uit hun ivoren toren te lokken en even met hun poten in de feiten te gaan staan, je hebt tech tech inderdaad, maar ook mensen die affiniteit met tech hebben maar vooral mensen willen enablen, mensen in contact te brengen met elkaar, uit te dagen, mee te werken dus niet tech tech, maar meer projectleider skills. We hebben ook communicatie, overigens geen mannen, dus om de press releases vorm te geven, de bewoners mee te nemen, de hele branding vormgeven dus dat is ook gewoon hartstikke belangrijk. Dus we hebben mensen die kunnen echt knetter hard in see sharp coderen, die hebben we ook, de ondernemers, die naar buiten gaan, dus het is best wel divers wat dat betreft.</p>
Wat is het verhaal wat jullie vertellen?	<p>Dat is een goeie, want dit is nog maar het begin. Want hoe vertel je de waarde van iets, zonder dat je het echt kan laten zien. Met andere woorden, we hebben nog niet knetter harde resultaten van dat de energierekening met 10 euro omlaag gaat. Die pilot fase die loopt nu, nog veel virtueel, maar we zouden er een aantal use cases op kunnen los laten, dan kunnen we het zien. Aan de andere kant, die klant beweging is gaande, het aantal aanvragen neemt significant toe</p>



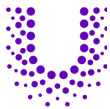
	<p>op pilots en projecten. Iedereen heeft dezelfde soort vragen en juist voor het bieden van antwoorden op die vragen wil je inspireren, maar ook aangeven, dat er een aantal randvoorwaarden aan zitten. Als je niet bereid om daar aan te voldoen, is het sterk te overwegen om het niet te doen, je ergens anders op te focussen. <b>Wat we proberen te doen is ee stukje branding, een stukje identiteit geven aan. LEF -&gt; lokaal energie flexibel.</b> Aan de andere kijk je hoe er kennis kan worden uitgewisseld, hoe je LEF communities, LEF initiatieven aan elkaar kan verbinden zodat er kennis uitgewisseld kan worden. Zodat je een basispakket aan kennis hebt. We hebben ook open source software, die wordt beschikbaar gesteld. En wat wij als netbeheerder daarvoor terug vragen is het volgende; het mag geen privaat net zijn, wat we ook willen is inzicht in de data om te zien wat het effect is. Er mag geen commerciële lock in zitten, dus er mag geen partij zijn die zegt dat ze ten alle tijden deze community willen serveren en je kan niet overstappen. En dat is ook onderdeel van de clean energy package; die geeft ook aan; een individu of een community mag ten alle tijden beslissen om in te stappen, maar ook om uit te stappen. Als je aan deze drie regels voldoet, mag je wat ons betreft een LEF wijk worden.</p> <p>F: Komen ze uit zichzelf of benaderen jullie die wijken?</p> <p>A: Nu komen ze uit zichzelf, maar ik denk in de toekomst dat we een mix gaan zien wat betreft benaderen. We kunnen ook zien waar wijken onder druk staan, iedereen kwartaal wordt er een congestiekaart gepubliceerd, voor zowel alliander als enexis als Stedin. Wat we nu doen, het is nu klantgedreven, dus laat de klanten maar komen en dan gaan we ze helpen. Maar ik zie goed voor me, op dit moment is alles nog geel, dus niet oranje, dat er krapte is. Laat staan rood. Bij Alliander en Enexis wel, maar bij ons geval betekent het nog niet dat we naar buiten gaan en zeggen oke kunnen we in den haag aan de slag. Ik voorzie dat wel tussen nu en drie jaar.</p> <p>F: Maar, wat zijn de termen die jullie gebruiken? Klimaatverandering energietransitie, autonoom zijn?</p> <p>A: ja natuurlijk. <b>Autonomie</b> geldt voor een aantal bedrijven heel sterk, die willen dat echt. Met gemeente Amsterdam hebben we windmolens geplaatst, maar we willen echt baas zijn over onze windenergie. <b>Het verschilt echt per doelgroep. We zijn nu aan het kijken, als we slimme meters aanbieden, wie is dan je aanspreekpunt. Is het b2b, spreek ik de uitvoerder aan, of spreek ik met VVE eigenaar, kan ook. Maar we zoeken wel een aanspreekpunt.</b></p>
<p>Zijn er institutionele barrièrs qua wet en regelgeving?</p>	<p>Ik denk met name het stukje experimenteerregeling, met betrekking tot het uitvoeren van experimenten. Dat is vrij LOG en kent lange iteraties maar ook vaak beperkingen. De initiële layered energy white paper ging uit van een incentive tot energiebelasting. Als jouw energie uit de wijk komt, dus echt van jouw buurman, waarom zou je dan voor de volle mep energiebelasting moeten betalen. Want de energiebelasting gaat om de volle mep, het hele systeem terwijl je</p>



	<p>alleen maar een klein stukje gebruikt. Belasting is heel lastig, er zijn al proeven bezig, de belastingdienst vindt het een sympatiek idee, alleen als je geld gaat wegstrepen, betekent dat dat er minder geld in de schatkist komt. Dus die hebben aangegeven, geven ze dan ook minder geld uit aan de andere kant, of verdienen ze dat ergens terug. Ze willen eigenlijk een totaalpakket hebben. Ze laten zich wel inspireren, en we willen wel blijven volgen. Op dit moment hebben we wel gezegd, oke dan passen we ons aan en focussen we ons op de andere gebieden dus lokale markt, tarieven, inkopen van congestie en balans, en niet meer belasting.</p> <p>We zien nu ook nu er meer en meer communities komen, het moet ook makkelijker worden. Aan de ene kant gemak, andere kant financieel voordeel, aan de andere kant duurzamer. Dus dat zijn wel drie essentiële ingrediënten voor het slagen van dit initiatief.</p>
Doen jullie ook aan lobbyen??	<p>We hebben wel aan lobbyen gedaan, bijvoorbeeld gas vrij tenzij voor nieuwbouwwijken. Op dit moment wordt er niet heel sterk gelobbyd: we zijn wel aan het kijken, bijvoorbeeld het hele SDE verhaal, daar zijn we wel strak naar aan het kijken hoe we daar mee omgaan. Minister Wiebes geeft aan; het heeft ons verrast, hoeveel impact die zonnepanelen op het net hebben gehad, dus dat goedkope buitengebieden aantrekkelijk zijn maar geen zware capaciteit aansluitingen hebben dus dat levert problemen. Ja dat heeft ons helemaal niet verrast, maar we moeten hier wel goed vervolg op definiëren.</p> <p>F: Dus jullie hebben ervaring met lobbyen, invloed hebben op beslissingen op politiek niveau?</p> <p>A: Ja en dat is echt op raad van bestuur niveau, die zie je dan op de ronde tafel zitten in den Haag om bepaalde punten door te geven. Je hebt ook het 10 punten plan van netbeheerders voor het doen slagen van de energietransitie. Die is ook ooit een keer gepubliceert en die is gelobbyt.</p>
Jullie doen veel projecten, hoe heeft dat invloed op de formele autoriteit die jullie hebben?	<p>Het gaat hier om maatschappelijk kosten en die hebben we goed inzichtelijk. Ook vanwege het 10 stappenplan, maar je hebt wel bepaalde autoriteit en je bepaalt geluid wat je laat door... de CEO wordt regelmatig gevraagd voor panels om de toekomst in te richten.</p>
Kan je ook iets zeggen over informele autoriteit, op bijvoorbeeld buurtniveau?	<p>Ja dat is lastig, ik denk ook dat heel veel mensen Stedin niet kennen. Als je mensen vraagt op straat in Rotterdam, kennen jullie Stedin, dan zegt de helft waarschijnlijk nee. Er zal waarschijnlijk 10-20 procent zijn die ons wel goed kent. Op bedrijfsniveau ligt dat anders. De individuele gebruikers betalen wij betalen de netbeheerkosten via eneco, greenchoiche of vattenfal, maar de grootgebruikers betalen direct aan ons, op basis van hun gebruik. Voor een paar zijn wij een behoorlijke kostenpost dus die kennen ons echt wel. En bij gemeentes, we zitten iedere dag aan tafel bij gemeenten, en ze zijn</p>



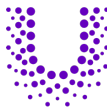
	<p>ook onze grootste aandeelhouder dus ze zijn er echt wel bij gebaat dat wij ons werk goed doen.</p> <p>F; wat is precies jullie verhouding met de gemeente?</p> <p>A: dat gaat twee kanten op. Ze zijn onze aandeelhouder, dus ze zijn erbij gebaat dat wij goed dividend draaien, en aan de andere kant zijn we sterk afhankelijk van elkaar. Den Haag wil niet dat elke week paleis Noordeinde open ligt, dat kan je gewoon niet verkopen. Ze willen ook dat mensen in de gemeente dan mensen hun auto kunnen opladen, elektrisch koken etc. Dus we hebben een openingsbod gedaan, per gemeente, hoe stellen wij voor dat deze gemeente de ambities van de energietransities gaan waarmaken. Het is niet zo dat wij als autoriteit zeggen, dit moet zo en anders vergeten jullie het maar. Het is net als onderhandelen en laten we kijken of we elkaar ergens in het midden kunnen treffen. En daarmee laat je een stukje autoriteit zien, maar je start ook het gesprek. Dus je vertrekpunt voor een gesprek.</p>
Hoe informeel waren de relaties. Bijvoorbeeld de whatsapp groep: zitten jullie er zelf in.	<p>Ik moet over twee dagen een appje sturen. Daar ben ik wel over aan het nadenken, dus je stelt je wel dienstbaar op. Dus je hebt een stukje tekst, die laat ik dan wel door communicatie checken.</p> <p>F: is het een actieve app groep?</p> <p>A: De challenges die we doen, we zijn vorig jaar begonnen, kick off gehad, af en toe een appje, bewonersavond, wie kan er dan en dan. En dat viel een beetje stil allemaal. Dus we hebben de challenges in het even geroepen, we hebben een systeem en dat loopt al, dat is een MVP, minimal viable product, en dat is virtueel wat we willen doen in het echt, dat kan al. Dus we drie categorieën challenges doen. De eerste is op gedrag, de tweede is op batterijen, en de derde hebben we het volledige systeem life.</p> <p>Wat we merkten, is dat de eerste ronde challenges, op de pie van de avond, ik had m geïntroduceerd in de groepsapp, en ik had m afgesloten. Er gebeurde niet zoveel mee, maar er was een groep die had een maximale bedrag gewonnen. En iedereen vroeg zich af hoe dat dan zou kunnen. Bij de tweede ronde zagne we het aantal log in gigantisch toenemen. En ook de appdiscussies waren niet meer door mij aangestoken. De mensen waren echt bezig met het energie in de wijk houden, dus als de zon schijnt, dan gebruiken we energie. Dus we moeten de warmtepomp anders instellen jongens, Dus ze hebben elkaar tutorials gestuurd, en ze hielpen elkaar, ze stonden bij elkaar voor de deur. Je merkt daardoor dat de betrokkenheid omhoog gaat. En ook juist de imperfecties die leiden tot heel veel betrokkenheid.</p>
BM: customer segment:	Bewoners van hoog dalem
Waarde:	Op bewoners niveau een manier om energie in de wijk te houden, een concept waarmee je in de toekomst je duurzame investeringen interessant kan maken. Op meer tactisch strategisch niveau is het



	<p>aanbieden van open source software, concepten branden, om die markt verder vorm te geven, antwoorden te bieden op meer dan de pilot, om te kunnen opschalen. Voor onszelf is het uitstellen van verzwareningen. Als je kijkt naar ons uitgave portfolio voor de komende jaren is dat giganstisch, en als we daarvan verzwareningen kunnen uitstellen omdat het toch wel meevalt qua congestie, want voorkomen is beter dan genezen, dan is heeft het voor ons waarde maar heeft dat ook maatschappelijk waarde. Zodat het bonnetje van de energietransitie minder hoog wordt dan verwacht. Dus daar zit voor ons ook de waarde als netbeheerder.</p>
Revenue model	<p>Wordt bepaald door de ACM voor kleingebruikers; die maakt gebruik van een vergelijking, benchmark. Dus die bepaalt hoe goed je bent en op basis van die vergelijking mag je je nettatarief bepalen voor het jaar. En dat betekent bijvoorbeeld dat je minder maatschappelijk geld uitgeeft, dat je goed werk goed voor je geld, dus er zit wel een controlemechaniek op. SODM, die houdt in de gaten of je alles wel netjes doet. Ze kijken heel erg naar je technische werk als netbheerder, je kostenmodel, de duurzaamheid de veiligheid, of je goed met je perosneel omgaat. Voor grootgebruikers is het anders, daar wordt er gekeken naar KW max, dus de grootte van je aansluiting. Dus ook al heb je een piek, daar betaal je voor. Dat is de capaciteitsbelasting die jij hebt veroorzaakt, daar betaal je voor. Daar doen we ook een tof experiment op. Want miss was die piek wel heel voordelig. Met een zware batterij kan je een piek creeren, waardoor het net veilig blijft. Bezig met nieuwe concepten voor tarief systemen, waarmee we zeggen dat het net veel efficiënter wordt gebruikt, daarmee kan je handelen uitvoeren voor het energienet dan je nu doet, dan je eigen energiehuishouden kan je met Tennet gaan spelen met 100KW, dus kan je meer inkomsten generen en wij ook. Uiteindelijk ligt de benefit wel bij de eindgebruiker, op zon manier dat het een nieuw energieconcept tekent. Wij creeren meer inkomsten voor onszelf, en ook meer voor de eindgebruiker. Als er meer kan op het net, waarom gebruiken we het dan niet gewoon. Salderen meest gunstige business case, dus de huidige situatie. Dat gaat versoberen, nu 20 cent per KW/h, over 7 jaar wordt het 10 cent. Stel zijn er burenen in de buurt die bereid zijn om 15 cent te betalen voor een KW/h. Op die manier ontstaat er een marktwerking.</p>
Resources	<p>Tempo vs kwaliteit; qua resources zit ik heel veel naast de organisatie. Wil je het in de organisatie inbakken of wil je het er naast doen. Liever snel falen of snel winnen en weer doorgaan, dan langzaam falen. En werk ik samen met partijen die mij dat kunnen bieden. Je word vooral ingehaald, Tennet heeft ook een platform gelanceerd, en meot je je daaraan comformeren of mogen we onze eigen realiteit gaan behouden. Aan de andere kant hebben we met</p>



	alliander aangesloten. Aan de ene kant competitie, aan de andere kant ook commitment aan de bewoners en andere stakeholders.
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## Interview 2: Kees Jan Mannetje ABB

Related to case: LEF Hoog Dalem / Stedin

Intro/small talk

Waar het hier om gaat is: Hoe kunnen we er voor zorgen dat al die energie die wordt opgewekt op een zonnige dag, ook gebruikt wordt. Als er niemand thuis is, dan gaat al die energie het landelijke net op en als wijk ben je het dan gewoon kwijt. Comfort: warmtepomp die ze hebben icm met de aansturing daarvan niet optimaal werkte. Vanuit Stedin: Hoe kunnen we zowel de piek in de opwek en de piek in de vraag reduceren. Steeds meer all electric; Voor ons, voor ABB. We hebben onze gateway, we hebben nog meerdere producten en hoe kunnen we dat gaan inzetten en hoe kunnen we de connectiviteit tussen die producten gaan optimaliseren. Dus zo is de proeftuin ontstaan, en op dit moment zitten we met een 15 tal huishouden die geconnect zijn, waar wij uiteindelijk de hardware voor hebben geleverd. In elke woning zit een installatiekast, en daar hebben we een gateway, een slimme meterkast van gemaakt, die met een aantal energiemeters de belangrijkste groepen meet. Om te kijken wat is de opwek en wat is het gebruik, wat is het gebruik van de warmtepomp, en hoe gebruikt die het dan. Zonnepanelen, wanneer wekken ze op, wat zijn de momenten en hoeveel wekken ze op, en wat kunnen ze met die overtollige energie. En nu zijn we dan bezig om de batterijen toe te voegen aan de community, zodat we ook op het moment dat bewoners veel opwerk hebben maar geen gebruik, dat ze dan ook voor kunnen zorgen dat de batterijen worden aangestuurd zodat ze gaan laden, en dan s'avonds dan weer gaan ontladen op het moment dat het voor de community, en ook voor Stedin dan het best is. Wat je ziet, elke batterij die nu, als ze al gebruikt worden met de huidige salderingsregeling, dat de algoritme van de batterijen zo zijn geschreven, dat hij de zelfconsumptie binnen de woning optimaliseert en bekijkt. Terwijl wij natuurlijk gezegd hebben, de zelfconsumptie van de community die moet optimaal worden.

F; dus meer op wijk niveau dan op individueel niveau.

K: Dus als je drie batterijen hebt staan in 3 woningen, dan zouden die batterijen eigenlijk onafhankelijk van elkaar er voor zorgen dsat die woning zo optimaal mogelijk met zijn zelfconsumptie aan de slag gaat, terwijl wij juist zeggen van ja, soms is het helemaal niet handig om op te slaan omdat de elektrische auto van de buren wil gaan laden. Dus eigenlijk moeten we dan met software van de wijk moeten we de batterij uitzetten, maar de laadpaal aan gaan zetten.

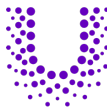
F: dus het gaat er hier om de boel zo efficiënt in te richten om op die manier flexibiliteit te creëren.

K: Ja dus zo zijn we gaan kijken hoe we die componenten zo slim mogelijk met elkaar kunnen laten communiceren. En het hele stuk wat we van ABB hebben toegevoegd is connectiviteit tussen al die producten die in die woning staan, uiteindelijk in de hele woning toegepast worden.

F: moet ik het me dan voorstellen als een minigrid:

K: Het is in die zin geen minigrid, maar je hebt het huidige elektriciteitsnet liggen. En in die wijk heb je iets van 300-400 woningen. En er zijn 15 woningen verspreid over die wijk die mee doen. Ze zitten in die zin niet aan elkaar gekoppeld, het is eigenlijk een virtuele minigrid, dus we hebben virtueel die woningen aan elkaar gekoppeld zodat ze exact zien wat de opbrengst en watr het gebruik is binnen die woningen en binnen de community van 15 huishoudens.





F: dus geen fysiek minigrid maar virtueel

K: Ja, want je hebt natuurlijk de huidige woningen, die zitten in een straat van 30-40 woningen en die zitten nog steeds aan hetzelfde elektriciteitsnet gekoppeld. Stedin krijgt dat nog niet voor elkaar om die woningen aan elkaar door te lussen.

F: Denk je dat dat de toekomst is?

K: op sommige plekken gebeurt het wel, in Aalsmeer zijn we met een project bezig, Oosterwold, waar we eigenlijk, dat zijn allemaal particuliere woningen, en ze hebben een kabel gekocht, en ze mogen zelf aan de slag. Ze hebben een klein beetje kaders meegekregen van de gemeente, maar verder hebben ze geen wet en regelgeving om daar het type huis wat je neer moet zetten en waar je allemaal voor kiest. En daarom mogen ze ook zelf de infrastructuur kiezen. Wat je dan wel ziet is dat ze eigenlijk een grote wijk.. neer willen zetten, en dan de vertakkingen naar de woning in eigen beheer, in privaat beheer willen gaan doen. Je ziet dat daar nog wel, met de huidige aansluitplicht, dat dat complexere vraagstukken met zich mee brengt. Maar deze woningen zijn wel echt fysiek met elkaar gekoppeld.

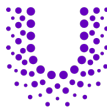
F: Dat is wel interessant, want een mini grid mag eigenlijk niet toch?

K: Je hebt je standaard aansluitplicht natuurlijk richting de netbeheerder. Maar wat je eigenlijk gaat doen is een soort vakantiepark, vakantiepark heeft een grote travo, en al die vakantiehuizen zijn een soort van minigrid aan elkaar gekoppeld. Maar dat beperkt zich puur tot een vakantiepark, die andere doeleinden heeft dan een woning, ook qua wet en regelgeving. Je ziet wel eens dat mensen off grid willen, dat mensen echt geen aansluiting willen, dat soort zaken kunnen wel, maar je ziet dat dat op individueel niveau gebeurt. En daarin zie je ook, wat nu steeds meer aan het komen is zijn die energie communities. Dat je eigenlijk met een aantal personen zegt, wij richten een energiecommunity op. We hebben geen energieleverancier meer, en onze energiecommunity is onze energieleverancier. En dan heb je iets meer speelruimte.

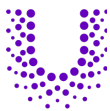
F: Zou je zeggen dat de nederlandse overheid faciliterend is?

K: maar dan alleen maar met wat er mogelijk is rondom de mogelijkheden experimenteerregeling. Dat zie je ook eigenlijk heel erg bij Hoog Dalem, de ontheffing van de ACM, valt onder de experimenteerregeling, daardoor kunnen we nu met de energie community iets doen. De netbeheerder, ze mogen eigenlijk niks. Op het moment dat je een batterij gaat neerzetten, een wijkbatterij, daar kan maar iets heen en weer gaan met geld, dat is eigenlijk niet binnen de rol van de netbeheerder en mogen ze heel die batterij niet managen. En dan nemen ze de soort van rol over van bijvoorbeeld energieleverancier. Dan heb je al een probleem binnen de huidige kaders van wet en regelgeving.

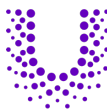
Question	Answer
Kan je iets over skills zeggen, welke skills waren hier vooral relevant?	Als je kijkt naar de energietransitie, je hebt daar natuurlijk een stuk <b>techniek</b> , je hebt een stuk <b>digitalisering</b> en je hebt een stuk <b>innovatie</b> . In heel veel gevallen is die innovatie gericht op die techniek en die digitalisering. Alleen als je natuurlijk gaat kijken naar alle onderzoeken, dat bij alle succesvolle innovatie, 75% gestart is met <b>sociale innovatie</b> . Dat zie je nu ook bij HD, het verzoek is uit de bewoners gekomen, we hebben avondjes gepland dat we bij de bewoners aan de keukentafel gezeten. Vanuit de bewoners zijn de ideeën aangedragen en vanuit daar is ook vooral het draagvlak



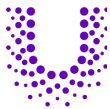
	<p>gecreëerd. Zeker in de energietransitie, we hebben een aantal grote opgaven, die zijn vooral technisch gericht, de netbeheerder moeten op een andere manier met hun infrastructuur omgaan, we gaan kijken of we all electric moeten of dat we op waterstof moeten, allemaal van dat soort opgaven zin eigenlijk allemaal technische onderwerpen. Maar daarnaast om uiteindelijk zaken te implementeren, dat vooral het draagvlak van onderaf veel belangrijker aan het worden is. Je moet als bedrijf niet meer denken dat jij een product en een oplossing, en je gaat daarna nog wel een keer een probleem zoeken en je product proberen te verkopen. Nee, je moet steeds meer gaan kijken waar de behoefte ligt, en hoe kunnen we met bestaande producten, of toevoeging van software of een stukje doorontwikkeling van nieuwe producten, uiteindelijk gaan inspelen op die hele vraag.</p> <p>F: Heel erg eindgebruiker gericht</p> <p>K: Je ziet ook, we zijn eigenlijk een soort van producent, we leveren nooit rechtstreeks aan consumenten. Bijvoorbeeld als je gaat kijken naar een woning, we hebben geen relatie met bouwbedrijven, maar we leveren aan technische groothandels. Dan heb je nog een stukje we bij installateurs kijken wat is ons gebruikersgemak, voor ons product, zodat de installateur bij de groothandel ons product gaat afnemen. Maar je ziet wel dat je steeds meer verplaatst richting de eindgebruiker. Of het nou een bouwbedrijf is, of een woningscorporatie, of de consument. Wat zijn de vraagstukken die daar spelen en hoe kunnen we daarop inspelen met elkaar.</p>
<p>Je noemde dat je bij de bewoners 's avonds aan tafel zat, dat klinkt eigenlijk best wel informeel. Hoe was dat?</p>	<p>Sowieso is het natuurlijk makkelijk met een proeftuin, bewoners krijgen gratis spullen dat ze kunnen gebruiken. Dus commerciële zaken spelen dan gewoon een stuk minder. Maar er zijn nog steeds hele relevante en essentiële vraagstukken; bijvoorbeeld batterijen plaatsen. Hoe zit het met de brandveiligheid van de batterij. Dat zijn allemaal vraagstukken die je van de bewoner krijgt, en waar je als bedrijf goed naar moet kijken. Ook al is het een proeftuin, mensen krijgen gratis spullen, maar daarnaast heb je wel een stuk comfort en veiligheid, wat wel heel belangrijker. Dus ja, het gaat wel een stuk informeler omdat je het rondom formele stuk, het commerciële stuk niet hebt. Maar daarnaast heb je nog steeds de belangrijke topics die je moet blijven spelen, zeker rondom veiligheid en comfort. Maar het moment dat je gewoon bij een bewoner savonds aan de keukentafel zit en langskomt, dan is dat inderdaad veel informeler.</p> <p>F: En bij jij zelf langsgeweest of was dat een communicatieteam?</p> <p>K: Nee we zijn echt zelf gegaan, het communicatieteam is later aangehaakt, met de branding en de persberichten enzo. Laat maar zeggen, diegene uit het project die nu ook contact hebben met de bewoners, dat was ook het projectteam dat bij de bewoners heeft gezeten. Dus Arjen vanuit Stedin</p>



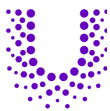
<p>En wat waren de meest waardevolle relaties binnen dit project?</p>	<p>De software die draait op de gateways, de connectiviteit in de woning. De software draait op Enervalis. Dat is een bedrijf waarin we bij ABB een aandeel in hebben genomen, destijds, om die software voor ons te ontwikkelen en op die manier een stukje continuïteit in de toekomst te garanderen. De eigenaar van Enervalis, die heeft nog steeds aandelen van Enervalis, die is lleco gestart, omdat dat stuk van enervalis gaat puur op implementatie van producten en diensten die we leveren met zonnegateway, hij is veel meer van de innovatie en wilde zich veel meer richten op de energiecommunities. Hij is dus lleco gestart, dus twee partijen en dezelfde eigenaar. We hebben er ook een installateur bij betrokken om uiteindelijk die installatiekasten aan te passen, we hadden lleco/Enervalis die de hele community dashboarding, de software daarom heen heeft ontwikkeld, de algoritmes heeft geschreven, Stedin dan, vanuit de netbeheerder, en dan hebben we energy21, die hebben uiteindelijk meegeschreven met de whitepaper over energiecommunities en zijn in die zin iets minder actief betrokken bij het nu, vanuit een adviesbureau schrijven ze dit soort content.</p>
<p>En hoe is dit netwerk dan ontstaan?</p>	<p>Eigenlijk zijn we doorgegaan op de eerste fase van 2014, daar zat Heijmans is, dat is het bedrijf wat de woningen heeft gemaakt. Wij hebben ook nog contacten met heijmans, zo is de vraag gekomen, omdat Stedin daar iets wilde doen. Die is uiteindelijk bij Heijmans terechtgekomen, en die heeft toen samen met Stedin gekeken welke partijen ze daar bij wilde halen. In de installatiekasten, daar zaten natuurlijk al producten van ABB in, dus zo zijn ze ook bij ABB terechtgekomen.</p> <p>F: Arjen zei ook al dat er een hele beweging gaande was, er komen steeds meer partijen bij, ook zoals Tesla en BMW, dat er een hele mobilisatie gaande is. Hoe zie je dat?</p> <p>K: Wat je ziet daarin, met dit soort concepten, stukje flexibiliteit, energieopslag is gewoon een steeds groter topic aan het worden. En wat je vooral in de toekomst gaat zien, als die salderingsregeling eenmaal afgebouwd is, is opslag en zelfconsumptie nog interessanter. Dus als je dat dan op grotere schaal, met een community kan doen, dan geeft dat als community nog meer winst voor een netbeheerder. Plus wat je straks ziet, met de hele stap van het elektrisch rijden, moet je nog een extra accu gaan kopen op het moment dat je nog een elektrische auto voor de deur hebt. Nu heb je 9/12 KW/h, straks heb je een 50/75Kw/h in je elektrische auto liggen. En wat is dan die 5/10 KW/h die je dan s'avonds nog gebruikt met je woning, die dan gevoed kan worden met je elektrische auto. Dus je zit ook dat bij directioneel laden, je auto weer terug naar het elektriciteitsnet, steeds meer een topic aan het worden is. Dus je ziet ook dat autobedrijven daar steeds meer aan het kijken zijn. Ik weet van Nissan, in Amsterdam, de Johan Cruijff Arena, daar liggen 2 MW aan batterijen van gebruikte Nissan Leafs die een tweede</p>



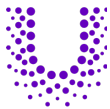
	<p>leven hebben gekregen. Dat was de eerste generatie leaf. Op het moment dat jij een actieradius hebt van 200km, de capaciteit is nog 60/70 procent van die batterij, dan is het eigenlijk niet meer geschikt voor een auto. Maar hij kan nog perfect ergens anders toegepast worden.</p>
<p>En zie je dan ook dat die afhankelijkheid van elkaar, dat die toeneemt?</p>	<p>Ja. Vroeger was het een.. lock in. Je ziet dat de relaties veranderen. Niemand zit meer op zijn eigen eiland, het gezamenlijk optrekken, elkaar blijven nadenken en uitdagen, wat kunnen we en wat willen we. Dat zie je in de hele markt hoor.</p> <p>F: op die manier ben je dus eigenlijk gelijk gedwongen naar een diversiteit van actoren, diversiteit aan expertise en op die manier sta je ook veel sterker</p> <p>K: Ja dat klopt. Iedereen had een schakel in de keten waar iedereen verantwoordelijk voor was. Het ging ook heel bureaucratisch van het ene naar het andere bureau, en je ziet dat dit soort vraagstukken steeds en meer als ketenpartners gezamenlijk opgepakt worden.</p> <p>F: Dus meer horizontaal?</p> <p>K: we zitten rechtstreeks met woningcorporaties om tafel, niet perse om concrete projecten op te pakken, maar wel met hun al samenzitten, we hebben de energietransitie, dit is jullie agenda, waar liggen de uitdagingen voor jullie en waar liggen de vraagstukken. Hoe kunnen we daar gezamenlijk als leveranciers een propositie voor maken zodat het ook nog eens betaalbaar blijft.</p>
<p>Zie jij zelf ook institutionele belemmeringen, qua wet en regelgeving, omtrent jullie belangen?</p>	<p>Voor ons speelt dat minder. Rondom de producten, je moet voldeon aan normen, je laat je product certificeren en dan kun je het toepassen. Wat je wel ziet, de huidige energiewetten, die stammen uit 1800 nog wat, dat we daarin heel veel belemmeringen zien om daar stappen in te maken.</p> <p>F: wat voor soort belemmeringen?</p> <p>K: eigenlijk de rol die een netbeheerder mag spelen. Maar ook, batterijen wordt vooral gezien als opslag. Een netbeheerder mag wel producten en assets inzetten voor congestiemanagement, om het net flexibel te beheren. Op het moment dat een batterij wordt gezien als een asset dat daarin een rol speelt, dan mag de batterij daar wel op ingezet worden. Op het moment dat je daar uiteindelijk stroom in gaat opslaan, en weer gaat afgeven, dan mag het niet meer omdat je dan een soort energieleverancier bent. Een netbeheerder gaat geen investeringen doen in een batterij, als er uiteindelijk niks voor een netbeheerder tegenover staat dat voor een netbeheerder financiële meerwaarde heeft. Dus je ziet eigenlijk dat al die rollen in het energielandschap echt nog een keer herbekeken moeten worden, wat mag een partij wel en wat niet. Daarin zie je ook dubbele btw tarieven, opslag, terugleveren als community, dat dat zaken zijn die dan niet interessant zijn om te doen. Plus, de salderingsregeling is voor de energietransitie een belemmering, aan</p>



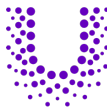
	<p>de andere kant bij 0 op de meter woningen, een van de business case elementen is die salderingteruglevering.</p> <p>F: Het is voor mensen een incentive om met zonnepanelen aan de slag te gaan, maar straks dan is die incentive weg en daarom kan een lokale marktplaats uitkomst bieden.</p> <p>K: Mensen moeten gestimuleerd worden met zonnepanelen, dus er moet een incentive tegenover staan. Alleen, op de gemiddelde dag, als er pieken zijn, alles klakkeloos op het net terugsturen, ja dat geeft zoveel andere problemen en uitdagingen, voor de netbeheerders vooral, omdat zij proberen het elektriciteitsnet stabiel te houden. Het op die manier omgaan met zonne energie, is niet heel toekomstbestendig. Je ziet bijvoorbeeld in het noorden en oosten van het land, dat grote zonneparken niet eens aangesloten mogen worden. Die hebben een vergunning gekregen met subsidies, en dan willen ze geld gaan verdienen met het aansluiten, en dan mag het niet, omdat het elektriciteitsnet dan niet geschikt is</p> <p>F: En zou Stedin dan positief of negatief tegen de salderingsregeling?</p> <p>K: voor een groot deel staan ze achter de afbouw van de salderingsregeling. Wat je dan terug moet geven aan de consument, is die incentive, wat dan als ik ervoor zorg dat ik een rol ga spelen met mijn installatie om die pieken af te vlakken.</p> <p>F: Dus het is puur tegemoetkomen van bewoners, door het aanbieden van iets anders</p> <p>K: Met de challenges bijvoorbeeld, hebben ze 600 euro bij elkaar gespaard, voor de volgende challenge, kunnen ze 500 euro krijgen. Dus op zon manier moet je wel iets terug gaan geven aan de community.</p> <p>F: Wat wordt er met dat geld gedaan?</p> <p>K: Er wordt nog gekeken wat ze daarmee willen gaan doen als bewoners, dat kan gewoon uitgekeerd worden aan alle bewoners. Maar vanuit energie communy kun je gaan kijken of bewoners er ook achter en open voor staan om hun energie contract op gaan zeggen, en dan een community opstarten en dan vervolgens aan de community betalen en niet aan de netbeheerder. Als community kan je dat geld gaan sparen, waardoor andere partijen en andere business modellen komen kijken. Als je dan een deelplatform voor elektrische auto's in je wijk neerzet, en die je vervolgens deel laat zijn voor het balanceren van het elektriciteitsnet, en je auto slim laat laden waardoor die gebruikskosten van de energietarieven goedkoper worden door die community, dan kan je dat geld weer inzetten om korting te krijgen in een deelauto. Zo kan je als particulier een auto wegdoen. Die hele sociale innovatie, wat zit erin voor bewoners. Het gaat niet alleen om geld. Het gaat ook om geld als je je tweede auto weg kan doen. Op het moment dat je ergens mee kan helpen en je het idee kan geven dat ze goed bezig zijn,</p>
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	<p>kan je ze veel meer terug geven. 1 bewoner met een elektrische auto, die heeft geen laadpaal thuis. Die wil met zn woning 0 op de meter zijn, als ik een auto toevoeg, heb ik een hoger gebruik. Dan ben ik niet meer 0 op de meter. Die laadt zijn auto alleen maar op met kantoor. En als de batterij dan leeg is, dan gaan ze sweekends met het openbaar gevoel. 0 op de meter wordt een doel, waar mensen bereid toe zijn om hun gedrag te veranderen.</p>
<p>Om de mensen echt mee te krijgen, om ze te overtuigen, welk discours slaat het meest aan?</p>	<p>Uit alle gesprekken bleek dat mensen meer als wijk zijnde ervoor zorgen dat de energie in de wijk blijft. Dat is een samenvatting van alle gesprekken die we gehad hebben. Pionieren speelt ook mee, dat je dan makkelijker in stapt in z'n traject. Maar de grootste reden is, hoe kunnen we duurzamer met elkaar omgaan en ervoor zorgen dat die duurzame energie ook in de wijk blijft. En daar hebben we met het verhaal ook zeker op ingespeeld.</p> <p>F: en hoe hebben jullie dat dan gedaan?</p> <p>K: Het was eerst altijd Hoog Dalem 2.0, en nu is het LEF. Die is ook echt gericht op de woningen, visualisaties, animaties, dat je energiestromen ziet lopen op die manier. Daar is op ingespeeld, of in meegegaan. Ze hadden de overeenkomst al getekend, dus ze hoefden niet nog overtuigd te worden maar het was meer om te schetsen wat ze zouden kunnen verwachten. De eerste keer was ook met de wethouder in het gemeentehuis, lokale krant uitgenodigd, zodat ze als bewoners in de aandacht hebben gestaan. Dus dat zijn allemaal dingen die je meeneemt en ook terug wilt geven aan bewoners</p>
<p>F: Ik heb van Stedin begrepen dat ze aan het lobbyen zijn, hoe zit dat met ABB?</p>	<p>K: eigenlijk de financiële wet en regelgeving met de energietransitie, heeft natuurlijk voor ons raakvlakken. Hoe meer van dit soort zaken geïnitieerd worden, en ook schaalbaar worden, dan heeft het natuurlijk altijd indirecte incentive. In dat opzicht, een woning en een installatiekast die blijf je nodig houden. Dat stukje connectiviteit dat is steeds belangrijker voor de energietransitie om vraag en aanbod op elkaar af te stemmen. Het moment dat dat goede wet en regelgeving en meer speelruimte is, voor consumenten maar ook voor woningbouwcorporaties of gebouweigenaren, dan heeft dat een voordeel voor ABB.</p> <p>F: en wie van de stakeholders heeft het meeste autoriteit??</p> <p>K: Dat is voor dit soort gevallen echt Stedin, hun rol wat ze hebben in netbeheer Nederland, dat netbeheer NL de grootste impact kan maken richting overheid en ACM om goed te kijken naar wet en regelgeving</p>
<p>Wat er nu, achteraf gezien, gebrek aan bepaalde expertise, kennis?</p>	<p>We zijn nu heel gemakkelijk in zee gestapt met de installateur die ook de woningen daar heeft gedaan, er had daar wel kritisch gekeken kunnen worden of dat de juiste installateur. Op het moment dat het gaat over connectiviteit en gateways, en meer dan een schroevendraaier, maar ook een laptop om zaken te activeren en te programmeren, dat daar beter gekeken had kunnen worden naar de</p>

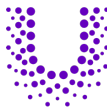


	<p>type installateur, en dat je dat in vervolgprojecten echt gaat meenemen. En welke communicatiemogelijkheden met protocollen zijn er binnen de producten. Bij de batterijen, een aantal zaken kunnen, de aansturen met een externe gateway gaat niet, wat meer met een API moet. Dat je meer tijd nodig hebt om dat soort zaken aan elkaar te knopen. Dat je in het vervolg kijkt hoe je de juiste techniek op elkaar kunt laten aansluiten. Als we snelheid willen maken, moeten we dan niet kiezen voor iets anders.</p> <p>F: Hoe zit dat dan met blockchain?</p> <p>K: de hele software, die uit lleco komt, uiteindelijk heeft Stedin hen de opdracht gegeven. Maar met dat soort software trajecten, vaak duurt dat veel langer. Alleen qua deadlines ging dat zoals gepland. Dus Stefan van lleco heeft de juiste kennis bij elkaar gezocht. Ook gewoon bij mensen in europa, wereldwijd die dat al vaker toegepast hebben. De blockchain techniek voor de energiemarkt hebben ze ook geïmplementeerd dan zelf ontwikkeld.</p> <p>F: dus bestaande blockchain techniek</p> <p>K; wel toegepast op deze situatie, maar de basisprincipes en uitgangspunten hebben ze kunnen overnemen.</p> <p>F; Had dit ook gekund zonder blockchain?</p> <p>K; het kan draaien zonder blockchain, maar dan heb je heel veel manuele interacties nodig, maar heel veel zaken krijg je dan niet zo geoptimaliseerd zoals vandaar de dag. Het is ook heel belangrijk om het financieel model erachter te kunnen krijgen, als we zien hoe energie eruit gewisseld is, hoe zitten daar de sleutels ten opzichte de financieel verrekening met energie contracten, dat is handmatig te doen maar de combinatie met algoritmes zorgt ervoor dat je goed kan gaan optimaliseren en voorspellen. We lezen al vanaf 2018 slimme meters uit, warmtepompen en zonnepanelen worden gemeten met een aparte energiemeting. Je hebt een aantal zonuren, zonkracht, obv historische datum weet je wat voor opwek er gaat komen en dan weet je ook wat voor verbruik je nodig hebt om die piek af te kunnen plakken.</p>
Qua tijd, viel het mee of tegen?	<p>Achteraf kost het meer tijd dan verwacht, vooral met het nalopen van installaties.</p> <p>F: en geld?</p> <p>K: dat viel mee. Vooraf hadden we goed ingecalculeerd, en ook vooraf goed inzichtelijk gemaakt welke apparatuur nodig was dus we wisten ook welke prijs daaraan hing</p>
Customer segment	<p>Combinatie: huishoudens en in het nieuwe model, energy community een heel belangrijke relatie is. In sommige gevallen, woningcorporaties. En daarnaast, in het hele energielandschap de rol van aggregator, een bedrijf die vraag en aanbod, dus tussen de consument en energie community aan de ene kant, en de netbeheerder, en de tennets, aan de andere kant in balans houdt. Dus dat zijn de belangrijkste doelgroepen</p>



Waarde propositie	Groene waarde, toekomstbestendig, toekomstgericht. Afbouwen salderingsregeling, community flexibiliteit geven naar netbeheerder, ga je iets terugkrijgen op je energierekening. Normaal verdien je geld met je zonnepanelen, als dat wegvalt, is minder straks dan wat je straks in een community met elkaar gaat delen
Revenue model	Installateur / groothandel. Voor ons is het een indirect kanaal, je moet ervoor zorgen dat je als bedrijf innovatief bent en meedoet, als er vanuit de markt een vraag komt bij een bouwbedrijf, dat ze dan weten dat ABB er mee bezignis, dan moet je ervoor zorgen dat je interessant blijft zodat je jouw producten bij de groothandel gaan afnemen. De waardeketen daaromheen verandert niet, maar de rol is wel aan het veranderen, dat we vooraan bij de markt, bij de ketenpartijen zitten, dat je laat zien dat je met jouw innovaties de problemen van de partijen kan oplossen.
Small talk, samenvatting, hoe faciliterend is NL?	<p>K: in een proeftuin loop je eigenlijk tegen weinig problemen aan. Maar als je wilt schalen, dan is uiteindelijk de financiële incentive laag. Als je met bewoners iets met community wilt gaan, doen, dan zit je met BTW tarief, omdat een energiebedrijf natuurlijk zijn btw terug kan vragen. Dus je moet echt wel rondom energie communities een heel ander financieel model gaan krijgen, vooral met ACM qua wet en regelgeving, dus daar zijn ze wel mee bezig hoor. Dus ik zie dat positief in, maar dan zul je ook zien dat het anders niet gaat werken. Als je saldering afbouwt maar je geeft niks terug om zelfverbruik te stimuleren en dat soort zaken, dan gaat de energietransitie natuurlijk niet versneld worden.</p> <p>F: geloof je zelf in energy communities?</p> <p>K: Het moet geen belemering dat je alleen als community in kan stappen, dat je dat ook als individu kan. Maar dan stap je als individu ook in een community. Ik denk dat de gemiddelde energieleverancier een andere rol gaat krijgen. Die gaat als een community gedachte gaat werken, waardoor je dan ipv een energieleveranciers contract hebt, dat je straks ook deel uitmaakt van een soort community, maar dat is dan landelijk. Vb: van de bron, die hebben hun eigen windmolens en zonnepanelen, dat is voor veel mensen al een community. Ik denk niet dat het alleen als eigen wijk, eigen buurt, maar het community gedachtegoed, lokaal je eigen zaken regelen. Bio producten, als het uit NL komt, of het nou uit zeeland komt of uit Groningen, het geeft hetzelfde idee. Je bent met elkaar bezig met een trend in ontwikkeling. Of dat het nou lokaal in de straat is, of geografisch losgelaten wordt</p>





## Interview 3: Rutger Luijers Dutch Tax Authority

Related to case: Lef Hoog Dalem / Stedin

Intro, small talk

F: Kan je me vertellen wat je bij de belastingdienst doet?

R: Ik werk bij de afdeling klantcoördinatie van energie/grote ondernemingen. Dat houdt in dat ik ondernemingen help op het gebied van hun belastingzaken te regelen, ik weet niet hoe gedetailleerd je dat wilt weten en of je de verhalen van Dick wel eens hebt gehoord

F: ja misschien beter om dat achterwege te laten

R: Dat dacht ik al, en ik weet niet precies in hoeverre ik jou echt kan helpen met het onderwerp waar jij op focust, institutioneel ondernemerschap, eerlijk gezegd nog nooit van gehoord. Maar ik zie wel heel veel interessante dingen gebeuren in het nederlandse energielandschap.

F: Wat dan?

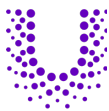
R: Nou je ziet wel verschuivingen. Ik vind persoonlijk dat innovatie niet genoeg wordt aangemoedigd vanuit de overheid. Er wordt wel gezegd dat er geëxperimenteerd moet worden, maar als men dat dan vervolgens probeert te doen, dan zijn er weer allemaal haken en ogen.

F: ja dat is grappig dat je dat zegt. Om even te introduceren wat ik bedoel met institutionaal ondernemerschap en wat ik zie in een nederlandse case, de case van Stedin, Stedin is dus aan het experimenteren met energy flexibiliteit op huishoudniveau. Maar als netbeheerder lopen zij tegen heel veel uitdagingen aan, vooral in de toekomst mbt tot overbelasting van het elektriciteitsnet. Dus moeten zij kijken naar waar er eventueel speling is om te voorkomen dat elektriciteits klakkeloos het net op gaat, dus bijvoorbeeld onderling energie uitwisselen op buurtniveau. Want ze willen ook dat huishoudens blijven investeren in hernieuwbare energie. Salderingsverhaal ken je waarschijnlijk wel. Stel Stedin wil bijvoorbeeld om dit te faciliteren, investeren in een buurtbatterij, dan mogen zij bijvoorbeeld geen geld vragen voor de elektriciteit die wordt afgenomen van die batterij. Want Stedin moet bij zijn rol als netbeheerder blijven. Is dit ook wat jij bedoelde met die haken en ogen?

R: Ja, precies. Een soort gelijk verhaal van Enexis; Enexis is bezig met ook een pilot, maar dan met accu's. Ze hadden een oud distributiehuisje waar ze niks meer mee deden. Dus wat deden ze, ze hebben daar accu's in geplaatst. Dus wat de zonnepanelen van bewoners is de buurt overdag opwekken, kon worden opgeslagen in die accu's. Waar men tegenaan liep, was zonder overleg met ons. Het opslaan van stroom is verbruik zoals bedoeld in wet en energiebelasting. Zodra het uit de batterij weer terug wordt vervoerd naar de bewoners, heb je een tweede levering. Een ingewikkeld verhaal, maar het komt er dus op neer dat er dubbel belasting moet worden betaald, wat eigenlijk heel raar is. Dus dit is ook iets waar netbeheerders tegenaan lopen; ongunstige belastingconstructies. Dus dat is echt iets waar nog naar gekeken moet worden, want dit zit ze echt tegen. Enexis heeft ook moeten stoppen met de pilot, omdat het financieel gewoon te onaantrekkelijk was om hier mee verder te gaan. Dit soort dingen zijn gewoon jammer

F: inderdaad best wel zonde

R: Dat is inderdaad zonde, wij zijn geen wetgever, wij maken de wet niet, wij voeren hem alleen uit. Maar wij koppelen dus wel terug, ik zit in dan in de landelijke doelgroep



energiebelasting, en die hebben weer korte lijntjes met het ministerie. Wij koppelen dan wel terug, jongens dit moet er gewoon uit. Dit moet ontheven worden.

F: Is het dan toevallig zo gebeurd, of heeft enexis hier een aandeel in gehad, heeft enexis geprobeerd om mog te lobbyen

R: voor deze pilot hebben ze zich er wel bij neergelegd, maar de netbeheerders hebben natuurlijk ook een branchevereniging. Je zou ook moeten kijken naar de wet vernieuwing energietransitie. Daarmee wordt de rol van de netbeheerders beperkt, terug naar de traditionele rol, terug naar het transport van stroom. En dat beperkt in innovatie. Net als bij Alliander, die kaartte aan: we zien meer elektrische auto's, maar we zien geen laadpalen. Zon laadpaal .. op ons netwerk, dus ik dacht wij richten een bv op met onze deelneming, Allego, die gaat die laadpalen opzetten. Daarmee is een rechtzaak begonnen tegen Alliander, omdat Nuon vond, jullie bevinden jullie als netbeheerder, op de commerciële markt. Dan zie je dus dat qua wet en regelgeving, wat mag een netbeheerder wel en niet, beperkt in innovatie in de energietransitie. Aan de ene kant zijn de netbeheerders, nuon was eerst en energieleverancier en netbeheerder, 1 organisatie. In het kader van liberalisering is het netbeheer overheid gebleven en het leveren van energie is commercieel geworden. Netbeheerders moeten dus onafhankelijk blijven, en dan mag de overheid daar niet commercieel in gaan moeien. Dat snap ik, maar nu zie je, als we van het gas af gaan, hebben we heel veel gasleidingen. Dat is zonde, maar oke. Maar om nu als netbeheerder te gaan ontdekken, vooral met het verzwaren, hoe kunnen we die investeringen zo goed mogelijk doen, dan moeten ze wel die ruimte krijgen om te experimenteren om te innoveren. Ik ben eens met de splitsing van de taken, alleen nu beperkt het zich wel heel erg. Nu worden ze eigenlijk gedwongen om met commerciële partijen te samenwerken. Als Stedin het wil gaan proberen met een buurtbatterij, dan moet de buurtbatterij met een kleine energieleverancier in zee gaan. Als het experimenteren is, dan is het maar de vraag of een commerciële partij daarin wil investeren. Nog een ander voorbeeld: er is een ondernemer die wil festivallen vergroenen; normaal staan er dieselgeneratoren om te zorgen voor de stroom. Nu wil hij daar accu's gaan neerzetten. Alleen dan heb je dus weer een dubbele levering, en dus dus dubbele belasting. En dan wordt het voor zon onderneming gewoon te duur.

F: En wat zie jij dan bij de klanten die je bezoekt?

R: ja ik krijg regelmatig vragen van wanneer gaat het nou veranderen, maar dan zeg ik ja dan moet je echt bij het ministerie zijn.

F: wat zou op overheidsniveau moeten gebeuren om meer faciliteren te zijn.

R: De investeringen van netbeheerders zijn echt heel groot, dat heb je vast al van de netbeheerder gehoord. De tarieven die de netbeheerder worden bepaald door de ACM. Die wordt bepaald door de huidige kosten van de netbeheerder, zit dus geen opslag in. Waardoor ze geen extra middelen hebben om het te kunnen financieren. Dus daar zit een vertraging in. Wat dus zou helpen, puur voor netbeheerders, is die tarieven daarop uit te passen. Qua innovatie van commerciële partijen heb ik wat minder zicht op, van mijn positie.

F: zou de ACM dat moeten loslaten?

R: nee, ze zouden gewoon 5 tot 10 euro extra moeten rekenen om zo toekomstige investeringen te kunnen doen. Nu moet Stedin bij de aandeelhouders langs om meer geld op te halen, dat zijn de gemeenten.

R: De ACM staat voor Autoriteit Consument en Markt. Zij bepalen de prijs voor Stedin bijvoorbeeld, die Stedin mag vragen voor zijn netbeheerkosten richting huishoudens.



Huishoudens betalen dat bedrag indirect via hun energierekening aan hun energieleverancier, die draagt weer af aan de netbeheerder. Grootgebruikers zoals bedrijven enzo, betalen direct aan Stedin. Maar goed, de ACM bepaald dus de prijs. En stel Stedin geeft aan dat zij voor enorme financiële uitdagingen staan met betrekking tot netverzwaring, kunnen ze dus niet zeggen van wij gaan een hogere prijs vragen om hierop te anticiperen. Want die prijs is vastgesteld door de ACM en kan niet zomaar veranderd worden. Kijk en het is natuurlijk goed he, dat de ACM er is, want de netbeheerders zijn natuurlijk monopolisten, maar je ziet nu wel dat er fricties optreden. De netbeheerders laten wel zien dat ze volop voorruit willen, kijk naar het transitieplan voor netbeheerders. Daar vragen ze de overheid ook letterlijk om meer speelruimte.

F: welke skills denk jij dat voor een ondernemer in de energietransitie belangrijk is hier.

R: **marketing, social media, sterk verhaal**. Kijk bijvoorbeeld naar van de Bron. Uiteindelijk zijn ze opgekocht door Essent. Die marges, die warne niet zo hoog. Als je me dan vraagt, waar knelt de energietransitie. Je moet het hebben van prijs vechten, en dat is zo conflicterend omdat een aantal duurzaamheidsdoelstellingen zijn duurder.

F: wanneer heeft een partij voor jullie autoriteit

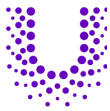
R: daar maken wij geen onderscheid in. Geen discriminatie, maar de grote energiebedrijven zitten in de netwerkbranche vereniging zijn goed vertegenwoordigd, en daarom komen hun belangen ook meer naar voren, omdat zij makkelijker een platform kunnen vinden.

F: Wat ik dus net aangaf, wat mag de netbeheerder wel, wat mag de netbeheerder niet.

R: bij de wet transitie worden die rollen duidelijk gedefinieerd, hier in Arnhem zit Tennet, daar zit Arnheems buiten.

In huurhugowaard, is er een experimenteerwijk waarin de netbeheerder de ruimte heeft om bepaalde apparaten aan en uit te zetten. En ook om bijvoorbeeld zonnepanelen uit te zetten. Wij worden als particulier bij decentrale opwek worden wij een hele grote partij in de energietransitie en de opwekcapaciteit. Als wij met z'n allen wat privacy op zouden geven door in die zin, regie af te geven, internet of everything, wasmachine en droger aan internet hangen en dat ze op een bepaald moment pas aan gaan met bepaalde capaciteit. Dat zou heel erg ons net flexibel maken en ruimte geven voor de energietransitie. Dat is flexibiliteit en dat is regie afstaan.

F: huishoudens gaan dus een belangrijke rol spelen in de energietransitie en dat netbeheerders dus afhankelijk zijn van huishoudens. Als wij als particulier ons gedrag kunnen veranderen, heb je heel veel winst voor de energietransitie.

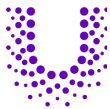


## Interview 4: Ben McGowen TRY Yackadandah

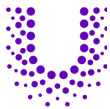
Related to case: TRY Yackadandah

Intro/Small talk

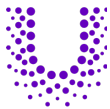
<p>Can you tell me how the business is currently going?</p>	<p>B: in 2019, we launched what we call community energy hubs. We launched the first one in Yack, as a pilot. What we were hoping to do with those is have the energy, being able to visualize in their own town where the energy is coming and going. We launched that in November 2019, actually taking on costumers and apply them with electricity, its taking a long time to take the software right, to be able to show that visibility. Its about to go live as we speak. So its 6/7 months since we launched, its been frustrating, still only for a portion of costumers there is this Mondo device. That has been frustrating. We've been testing all those systems for a few months. We were intending to run a big motional series of events, what we call Australian town hall events. Where you put the process, you say come here, indigo power, energy hub.. we had a bushfire coming through our region. Australia in January was on fire, including our area. One of our staff members had their property burned. So it was not a good time to be doing that, so we delayed that into march, so we had the two events, and the third one in a modified version. But we had to cancel because of the pandemic. You know, not the best. But the good thing here in Australia, is that the government has been quite supportive. So they have been providing business with some relief funding. Which would be good, otherwise it would be a very difficult time. Not an impossible time, but a difficult time. The other thing we've done is doing our first share offer, public share offer. We did that promotion, a campaign, and we raised 300.00 dollar with those shares. We did that in April, part of these events what we are doing with the community energy hub is also about telling people that they can become a share holder. That was good to be able to raise, almost 270 people bought shares of Indigo Power. That was good, because we were really uncertain about how that were gonna go. That's the long answer, the short answer is; the business is going well, despite the circumstances.</p>
<p>and I can imagine these events are quite important for community initiatives</p>	<p>for building trust, people like to see you hear you and ask your questions. Because is something new that we are doing and people don't necessarily understand it. That's one of the difficult things. A lot of people think we sell solar panels. We</p>



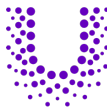
	<p>don't. Its hard to explain something new and keeping it simple. One of the good ways doing that, reaching people, invite people to come here and those people could do an supportive, pass the word through mouth, if they can understand is as well, tell the story, more one on one, as people call in, webinars. We're looking forward to go back out, and try again with those events.</p>
<p>F: First questions will be going about skills. As a business you're growing. And that would require a lot of skills. What skills are important here</p>	<p>At the general level, its sort of problem solving skills, general solving skills, bringing lots of different.. knowledge to it. At this stage, that's sort of that's required. You need to be able to do a little bit of everything. You need to be able to manage your projects reasonably well. Doesn't have to be the perfect project plan. You need to have your accounts reasonable accurate and that sort of things, but the stakes aren't high if I was been employed for an accountant for a large firm so being able to turn your mind to a little bit of everything and being able to have thd confidence to model your way, work out .. here. So I guess my background is a bit like that, I've got for instance, I was working in conservation, just finished a phd in environmental sociology/politics. Little bit of everything, that's pretty important being able to turn your mind to a solution for everything, putting a financial model together and to do some basic marketing. Problem solving skills, I would say confidence, having the confidence to have it go. I think, software skills, you need to be able to, you don't need to be a programmer but you need to be able to work out integrations, excel, that sort of things. You gotta be able to use excel. I guess being familiar with software, all our systems are online in the cloud. And being organized, you must be organized. That's crucial.</p>
<p>Do you also think that your background as a social researcher was important here?</p>	<p>Hard to tell. I think you need to have either one person who can work across lets say, understanding the marketing, the communication, reaching the people and communicate effectifely with them. On the one hand, and a person who can sort of rangle the figures and that sort of things. Its important to know where the money comes from and is going to. That's not necessary a math person, but someone who is organized in that sort of thing. So I think we've been lucky. So I can do both of those things. We're at a point now where we do need someone who is able to do effective marketing, but we just don't have the revenue yet. Ultimately you run out of time, so even though you might have started off being able to do social media, you don't have enough time to do it effectively. The other skill is really useful, we've had a lawyer, who has worked</p>



	<p>with us. Which has been really useful as well, who is in our board and really rolls the sleeves up and does a lot of the work as well, writing contracts and that sort of thing. That's been important, otherwise we would have had a problem in that sphere. Again, being prepared and organized in that sphere is also useful, and I don't have the knowledge to do that well. Its been really useful. There's another piece about, not to over simplify things, people who enjoy the organizing, numbers, planning, picking up the phone and call other people, and like doing that. I don't its good to have, or one person who is a bit more like that. He's less organized, but he is very connected, he knows what happening, he knows how to reach out, he is a engagement officer, does something about coms as well, he's been really effective and communicate with philanthropists, organizing meetings with them and connecting them into the story as well, so being supportive for purpose work we've been doing. Its good to have people who can do one or the other</p>
<p>Were there also skills / knowledge that was lacking in this initiative?</p>	<p>You cant have subsistute experience, you just cant know or learn whats, if you have gone that path before then you know that's not possible, sometimes you need to have this experience yourself. We didn't have any experience in the electricity sector. We were just learning along as we went, that's been good, but pretty tricky. Pretty steep learning curve. It would have been great if we would have anyone experienced in the electricity sector. But that's something what we have been missing; experience in the topic. We've had to substitute that experience with a lot of energy volunteer hours. When you don't have experience it takes you three times longer to do the jobs. You are making mistakes, you have to fix them up. You're learning all the time. That's one. We don't again have a good finance brain, I can do the modeling, the financial modelling, to a certain level. We don't have a good finance person. That would be great. I think we still haven't really got someone who can put together good analysis, one of the things we're trying to do, takes forever, is building a community owned solar and battery system in Yack, to supply the yackadandah hub. It would be great to have an electrical engineer / project manager to bring that project together, at the moment we're fueling our way through it and that's difficult You can sort of break down what electricity experience looks like, start with an electrical engineer, or a whole sale trader, something like that, who can be a bit more sophisticated about how we manage our solar / battery system and make the most out of that. And then maybe who is good at marketing in</p>

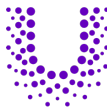


	<p>electricity sort of stuff, sales, someone who has done operations, you know, retailer, all that sort of things. You can go on and on, we never gonna have those kinds of people, so the best we can do is build the experience as we go and try and when the moments is right, bring the person who ca do that work. But there is never gonna be a whole sale trader at indigo power.</p>
<p>F: and experience as an entrepreneur?</p>	<p>one of the things we have found useful, one of our shareholders we came on at the start of the year, he's a successful entrepreneur, started a software company that now manages a lot of hospital management software systems in Australia. So he's been working with us, giving his advice and time helping us, do our job better. So that's been really useful having him on board. Helps us understand our business better. That experience is proving useful as we speak.</p>
<p>F; How did you gain insights in the needs of the stakeholders? What was the strategy</p>	<p>so basically, the community energy hub model, the logic, indigo power can set up this set of tools, the energy retailer, energy supplier business, that's software that shows people how much energy is being generated, consumed locally, I think it's a well saying, if you want to put some solar panels in the warehouse in town, we'll help you do that, and if you want to do a bulk buy in battery solar products, we'll help you to do that as well, in that way you give people the tools to takw their town to 100% renewable energy. In that story, the important stakeholders are a local group of dedicated people, willing to put in a little bit of work to do that, whether that's an organization is formed to do that, or people who just want to spread the word. What we've done, before we started indigo power, we had some funding to do the business planning. WE brought together all the existing not for profits groups in the area here in NE victora, and have a conversation about 'wouldn't it be good to set up a community owned electricity retailer' and from that group set up a network of those groups and focused as well, because we had those interests for us going out, setting up new groups, setting up events, bringing people together and helping people set up a new group to do that work. So I think that network has bene growing, for maybe 8,9 or 10, to 15-16 now. We get together and tell whats been happening with indigo power, everyone tells about what they are working on, people telling different ideas offline to work on independently, and that has bene a really good way of getting feedback, testing what people's thoughts are and see what the people are working on. Keeping people informed whats happening with us as well, setting up and conveying that network for that not for profit groups has been pretty important.</p>

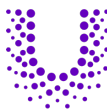


	<p>And in fact, talking about all those events, we were gonna be in each of their towns, each of their partners, in that network, going to the towns where there is a group, standing with them on a stage, telling the story and answering questions. That's been pretty important. I mean other stakeholders, we've got donors, philanthropist, who support our work. And we were just about to set up our indigo power foundation, to more effectively separate our for profit and not for profit activities. For purpose might be a better word. We're gonna set that up and that's gonna be a better way of engagement for philanthropist. We send a regular update, of what's happening, requests for funding, that sort of things.</p> <p>We haven't had customers for very long so we don't have a very sophisticated way of attracting with them yet, in fact we're working out.. systems and that sort of things.</p> <p>Engagement with them has been made a mistake on this or something like that. We need to get better time to .. what's happening with the hubs. Visualization is coming soon which is important for that. Who else, our shareholders. We got like 300 shareholders, we need to again, develop a sophisticated, we did have 20 something and we would have these events with 20 people. It's not so easy with 300 people so we need to work out how do we engage with 300 shareholders instead of 20. I think that's probably the most important stakeholders, without moving on to the partners that we have</p>
<p>F; what is it exactly that make the people follow?</p>	<p>what we are asking people to do in different forms, lets go back to that network of community energy groups. I think they understand the concept and like it, and the objectives align. Indigo wants to make their town renewable, they want to make their town renewable, indigo power is gonna help them to that. That's a pretty logical, it's interesting, it's engaging, there's interesting people. I like to be involved in this movement in our region, its commitment is not too high, I come to the meetings once in 3 month, I go to my own meetings with the group, and then indigo power might have an idea to do something. And then we have an event or something like that. That's how it works. The alignment of interests, the demand is not too high on that time, doesn't cost them really anything we can cover the costs. There's engaging on a topic that is important to them, like climate change and feeling like they are doing that effectively with a cohort of people. So that's them. When were talking with costumers, it's a different story. Most people want to know about their price, interesting thing there is with what we're doing with our price is that is ... with our competitors. That makes it difficult obviously. People are very interested in price and a local provider and speaking to someone that's</p>





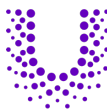
	<p>local like a proper customer service team. That's one person at the moment. They are interested in the environmental benefits. And I think ultimately they are interested in what's happening in their town. But I think that's more interesting when it comes, it's not why they switch. Basically they switch, the idea of a local provider that's clean, 100 % carbon offset, and they switch when the price is cost competitive, doesn't cost them much more, or costs them less in some cases. That's basically the story. And it's nice to say; we do good storytelling with hubs, engaging with that on a daily basis, like look at the Yack hub yesterday was 70 % supplied with renewable energy from different places from community members with solar. We're not yet at a stage where we can do that without followers. I'm looking forward to a time, you know last year, where we can do a daily update and tell people, the hub that had the highest percent of renewable energy and start to engage in that way and start to say, make it interesting for all the participants, whether it's the community energy groups, people with the solar systems or people without the solar systems but want to buy green energy from their neighbors. I think that's the next bit of work to do, that's on us to do, we need to develop that software and develop the storytelling tools to do that effectively, at the moment we're more... to a typical electricity retailer than we are to our vision of a really innovative and interesting alternative. So we sort of just begun that, that's how we start, we sort of only some way out from that starting point we got a long way to go get where we want to be.</p>
How multidiverse is your network?	<p>Most of the people are retirees. I think it probably, people who work for us at the moment, there's myself, there's Sandy.. there's three of us. We're all men. People who started I guess. Sandy was our first employee we employed, and also only men applied, which was interesting. But the network is mostly middle ages, white, men and woman from country Victoria. It's not diverse, not particularly diverse, were in rural Australia and this is most representative of the area. And it's not particularly diverse. And it's effective, everyone is middle ages white person who cares about climate change and has... financial capacity. They are not working three jobs, they are either retired, they got the time to think about what they want to do with their electricity. Basically it has been at the moment, the community of interest is self selecting in a way, we have done a lot of events and so on, and the people who come to those events are the people you would expect to come at those events which are the people I just described. And there's not necessarily a breakthrough beyond that community of</p>



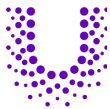
	<p>interests into new areas and started talking about climate change and so on. We go to sustainability festival every year and speak to different people, its not as if were going to different communitis and talk to them about it.</p>
<p>and do you think it would be different if the context is different, attract other kinds of people?</p>	<p>Yeah it would be different. You know, then you are just more into, people don't have the time to engage with you I guess so it becomes more difficult. People need the time to think about it its not just like, look at the website, check the price, saying yes or no. It's a bit more complicated I guess. If it was the reverse it was much more difficult, and it would rely from the start, bootstrapping the company and the story along and doing something, testing it out, giving it a little bit better, because you have the people to test it with, people who are willing to engage, to explore, it would been more of that, we could have raised a whole lot of money, perfect the system.</p>
<p>And with regard to the network, can you distinguish on a formal and informal level</p>	<p>not really, some people are paid, Matt, works for a company called Mondo who are a commercial smart grid company. Basically, we are all doing similar sort of work. No one is there with a whole body of knowledge or experience what differentiates them from anyone else. People who are interested in climate change tryna learn as much as they can so they can do something about it. There is no clear distinction on those who are paid and those who are not. Its not a ... in the meanings. Doesn't feel that there is an actual distinction</p>
<p>would you then say that the network is mainly informal?</p>	<p>Well, yeah there are in a way. There's no financial ties that bind us. For instance, we did this hot water bulk buy where we sold energy efficiency hot water systems and held events for those, some people participated other didn't. the groups got 25 dollars for their work. Its not much. It's a working together relationships. No contracts or funding agreements. Its very informal</p>
<p>Are there relationships on an institutional level? Local municipalities, governments, etc.</p>	<p>we have had a lot of support from the Victorian government on a funding level. The environmental department did a renewable energy plan for this region and had some funding to do that. And I sat on the control board for that and help guide that. That also took a lot of engagement with those community energy groups, and used a lot about networks and work with them closely with these projects, support the networks and attend the meetings. And time at time they have a funding for renewable energy projects. When that's the case they come to the meeting and say you should see these funding around these sorts of things you can apply for; here's what you need</p>



	<p>to know; here's the opportunity. That happens a bit. The municipality are supportive, they are doing their own thing but if we have an idea they listen and support. Especially if it doesn't cost them anything. The indigo shire council is the local one here. We got a grant from the Victorian government and the shire council pitched 30,000 dollar and employed me to do that work to set up indigo power, supportive in that way, they are a small rural munic so they don't have a lot of money.</p> <p>Federal government, the fed member here at the moment is doing a engagement process, attended the network, launched a paper a call for submissions across Australia on community energy plan, she's a fed member so she's going to take that to parlement, we're trying to get some outcome from the fed government. Fed government from time to time has grants, we all applied for them, they level up from the Victorian government once.</p>
<p>Would you also say these relationships are important?</p>	<p>Yes there are. At the same time there's a lot of rules and regulation we have to made as a company. Especially at the elec sector. On the one hand we get support, on the other hand everything is arranged in such a way to.. things take slowly. We're doing these community energy hubs and price them effectively is difficult. Ideally, what we want to do .. energy shares.. that's a bit cheaper. Its not going so fast. that's regulated in such a way that we can't do that.</p>
<p>What opportunities did you encounter in the field</p>	<p>: Funding is important. The Victorian government is really interested and engaged. They can also be costumers. The Victorian government is a costumer of ours, we installed the SP on the roof of their offices. The fed member is doing, trying to get to their policy, funding support at the end of the day. We don't get much of expertise from the institutions, its mainly funding. That's mostly what the opportunities lie.</p>
<p>were there also institutional barriers, pricing system?</p>	<p>Yeah there are institutional barriers. Victoria has its own set of standards of rules, which makes it tricky. For instance, with energy locals, who holds their licence. You need a licence, operating under that lisenace we have to say on our bills. We're obliged to say indigo power, here's your bill and you can get a cheaper bill at energy locals. It's a really heavy regulated industry. The way you set prices is really controlled. We don't wanna have high prices anyway. Theres a minimum amount you have to pay your costumers for the elec they provide. You got to offer at least that amount. And I guess in the elec price. Lets say we're trying to have it cheaper. Practically its really hard to do that. The costs of that is really heavily, is prescribed</p>



	by the government. Its hard to create a system where local energy is cheaper than power supplied from.. a long way away. That's one of the challenged.
Would it be beneficial if you would overcome these challenges?	the rules are there, and we all have to be within them. The rules change slowly, that's how a good system work. They don't change unless theres a lot of pressure on them to change. They just don't change on the win of someone. Its hard to, lets say the regulations change in the pricing, then we have to negotiate with regard to fixed pricing, we have to pay the network service provbider, we have to negotiate with that company and we may not be in a strong bargaining position, we're a little company and then we have to pay a higher price. The rules are there and some of them don't serve us particularly well, but it rests on us to build a good argument and build support for them to change. The problem, we don't have any resources to do policy work. That makes it difficult.
Do you mean financial resources or time?	Time, I could do that if I spend half of my time to do that. If we had the money, we would not spend it on a policy officer.
Informal authority?	It's a position of trust, I guess. We've done a lot of work over the years to establish a credible voice on local energy matters. A credible voice that says, lets take advantage of the renew energy transition here in Vic, for the benefit for the region and the nec to act on climate change. I think that's the voice that's hopefully a trusted voice. Its more than doing good than making money. That's position hopefully that we speak from and people trust us, and they will support us, because they know that we're focusing on those things and that we're not corporates or that sort of things. We're actually genuine.
The people they see it, the fact that you are more into doing good than making profit	Practically you have to manage your revenue stream, but people expect us to do that in a way also combines set our objectives. We're a social enterprise, that means that our profits co back into projects. We got a constitution that are very firm on that. Limited ownership, so that not one person can get control over the company. Off the community and for the community and focused on RE. I think that's true so far. People believe that
What are the future plans?	we need to move into New south wales. We need to get more community energy hubs and the network over there, we need to work on our software, demonstrate the community energy hub. We need to build more RE generation facilities to connect to the hub and supply costumers to the hubs, That's a pretty



	good body of work for a not for profit foundations. Expanding, making our product better, becoming a little bit more separate in our for profit and not profit work.
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Small talk / end

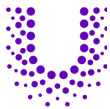
### Interview 5: Matt Grogan

Related to case: TRY Yackadandah, volunteer

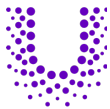
#### Small talk / intro

I'm very interested in taking action on CC. In australia, the biggest contributor to climate change is the electricity system. Compared to other sectors, the technology exists to make a transition. Its just really a lack of community will to create the transition that's needed and that's we are set to really make some changes and challenge what the electricity system looks like.

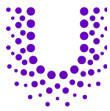
Are you doing this on a voluntary basis?	A lot of was on a volunteer basis. Now it's a little bit commercial, to cover some costs really.
What was your role?	Yeah that's was the involvement that ive had with IP. Establishing the company and setting up the company in a way. It takes a lot of philosophy from a corporate or not for profit and then train them over a social enterprise. Are u familiar with that term? One thing is the structure of the company, making sure we are compliant and on top of all that sort of things.
Was it the formal part of setting up the company?	The formal sort of, yeah. We're about to have 270 shareholders, making sure that we're doing what the regulations require. I guess enabling us to do the activities that we wanna do with the community energy systems. If we can do that, we're a fully functioning and a compliant company.
According to Ben there was no experience in the electricity sector, a steep learning curve?	Yeah it was, the mentality what we had was like, we don't know a lot about electricity but we know that change is gonna happen really fast. Its about cc, either we wait for it to happen or we have it go, and we thought lets have it go. What could go wrong? Well



	<p>we can have a failed company, but a failed company compared with, 5-10 years behind track, not only is climate change is irreversible, then we even have tried anything. So we said lets have it go. That's what's the philosophy. AUS has a lot of coal, a lot of vested interest in coal in the electricity market. Some serious money is going on in coal, we have a lot to lose from a climate sector.</p>
<p>M: F: Even though there was no experience in the electricity sector, you can say it was quite successful. How?</p>	<p>Its really the community spirit. Doing the work to the people think, that what people think that's a good idea. Let's try to share the electricity that we generate and consume locally, so lets up and make it interactively share them. It works for us because we like a local economy, put the profit scale away and it promotes renewable electricity. Most people like it but don't really have the energy to go and do it, carry out that task. I guess we've just been .. enough to carry on and actually do what is a good idea. We just have it go.</p>
<p>And the people follow, they are enthusiastic and they want to participate</p>	<p>yea they are, there's a little of a nurture there. We are asking them to make a change, asking them to change their retailer so it's a privatized sector. We are asking them to do away with their electricity retailer. 80 percent of people will never change energy retailer, even though its an easy job, 8 minutes on the phone or 10 minutes on an internet platform. Because it was a state owned utility and then the change got made 20 years ago, and for a lot of people.. where asking them to make that change. Sometimes it's still little slow, slower than we had have hoped but we still got really steady growth so people have an idea, when we did that capital raise. That proves that people are behind the ideas.</p>
<p>The network is growing right?</p>	<p>Absolutely. That's one of the real strong, the fact that we can provide a ...</p>

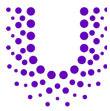


	government really likes the idea of regional solutions rather than local solutions, its just way easier for them. Having a .. that's consistent over the regions.
The fact that the people follow here, requires a certain sets of skills. The people trust you, you're able to tell the story	We got a story to tell, weve been doing it for a while, the story builds. We know people that they know, so a change happens at a speed of trust is build at the speed that relationships are build. If you already have existing relationships, you can really leverage those. Its like building trust and change more quickly. We already leveraged that in existing networks. The thing about the network is, there's benefit for people, the people in the network try to get renewable achievements in their electricity system through their, they put their pride, they put their name on this idea. We're providing .. that's going to enable them have more success in what they are doing. Collectively its more some of these parts, I think that's attractive to the network members.
: You also said something about pride, are people proud to participate in this?	The pride also goes back to the home town. The network makes to discuss local arrangements to sort of upscale whats happening at a local level, I guess what im saying is the local activity has a lot to do with pride, because most of it are small towns, and if you are saying you are going to do something you are going to put yourself out there. So there's a reputation on the line, you want to get something done. And so, the network offers the opportunity to get things done.
What were the most valuable relationships, the community played a role here, are there also other actors?	the owner of the electricity network, did Ben tell you about the electricity system in Victoria, do you know about that?
yes the collaboration with the retailer, right	Months ago, we faced the decision, we want to have a electricity retailer licence, that would take 5 years and we would have needed millions and million of dollars

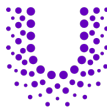


	without any revenue to do that. Or we could enter the market a lot sooner and partner with an existing retailer. So we took that option.
And how is that partnership going?	: its working quite well. We just started to have some significant generation assets, that would be a new chapter, in term sof their relationship. So far so good, we're getting real positive feedback, if we can't take a call than its going straight to energy locals.
and are there also other relevant relationships / partnerships?	there is the energy infrastructure owner, they own the infrastructure. The relationship is ok, they got a subsidiary, for electrical engineers and people with technical skills. They are an important relationships, they got the expertise and we don't.
TRY is a minigrid, right? Did that require any changes in the infrastructure?	At a household level rather than a grid level. Yackadandah is a town, smart metering is owned by the grid owner. That's the infrastructure change.
so no changes in the cables and stuff	no, that's too expensive
What I like so much, is that this network is growing. Do you think that's the case because TRY set the stage, or would it also have happened without TRY / Indigo Power	That's an interesting question. A little bit of both I think. There's external factors, other towns in Australia that have been doing excellent stuff before TRY came along, TRY has been leading the charge, the partnerships that try has developed. I really think that that is TRY strongest thing. Its not the expertise in TRY to go and build a minigrid, the capacity to genuinely build partnerships, which I think that other energy groups were getting into bed with real corporates.
With the partnerships you are referring to Energy locals and Mondo?	: The water corporations, the utlity, they spend a lot of money on renewables, for all intents and purposes, mondo is a massive corporate and that;s where a lot of community enetgy groups would have turned off, Turning to your questions. TRY offered a lot to the network, if it wasn't for





	TRY it would have been someone else. There's so much energy.
It sounds like a lot these groups were already there, lots of things were already happening. TRY was the one who was able to collaborate, get more formal, get more professional and also benefit from that.	That's right, a bit more organized. TRY and Mondo, even though TRY is like a tiny group, Mondo is a massive international corporation. We could do each other serious reputational damage. Which is pretty crazy, its not a equal meeting, but we invested a lot in each other. There's a lot to like about that, big corporate have a lot of resources in order to create major change, but they can't do it without support from communities.
so you're dependent on each other.	that's right
: especially with a community niche, to align with more bigger partners, with more expertise and more authority you don't have to reinvent the wheel. What I also like is that you guys started quite informal, and now you have 270 shareholders. That sounds like the enterprise is getting more formal and professional	Yes, we become a corporate ourselves in a lot of ways, but still for the community
and also to engage these shareholders, you need to do that differently than for example 30.	That's a good question. It gets harder. I think its about say you actually become a more mature company, getting more cons organized, messaging right, trying to get some champions out there within the community that are a bit closer to talk and spread the word, that's a lot of what we're about, generating excitement that we can take control of this.
that generating excitement, how do you do that?	It's been a challenge with Covid, with the lockdowns, we were really strong at that stuff. We could fill a town hall we were really strong with marketing and messaging and get a town hall area engaged with some videos and presentations, that's inspiring for people. Doing that online is much noisier. We have a bit of work to do in the post corona times.

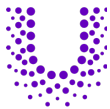


<p>What is the effect here of all these energy groups on the energy landscape, do you think that it is changing?</p>	<p>yes I think it is. Renewables are inevitable, there are going to happen. Economics are not stacking up to coal anymore, renewables are happening. Big players have come in, we've created plans to create massive solar farm in Australia. Because in Australia we could produce 10.000 times more solar energy than it needs, there's that much sun. Companies like Neoin, are cute struggling, and quite shocked how much power and planning schemes some small minorites and their objectivs have, that are they starting to realize. Not only can community groups affect change on a local scale, putting solar palers on a town hall, there's really big that are ... to these developments. These companies are like it might be smart to partner with these community groups really earlier and get a bit of... and then come in and we're thinking about doing this and working alongside the communities. So we're seeing a real shift in how this plays out. To answer your question, the longer we go on, the more important everyone is realizing how important these energy groups are and contribute and also can actually impact the .. of developments that are happening.</p>
<p>that's also interesting, that you can impact business developments. How is the government facilitating this?</p>	<p>There's local government, very limited money, they are supporting in strategy and advocating, so that's strong. the state government likewise, not so much money. They support community energy, they haven't been long term about. They have been ad hoc in their funding programs. That made it pretty challenging, you get a little bit of money from here, there's a logical next amount of money, you don't get that and then you circle back round, sort of seeing through the government and not your own pathway, communities know what they need to do, they just about how the funding could look like. At the national government, TRY has received some funding recently,</p>



	its the first opportunity that we had, the federal government hasnt been very supportive towards renewables.
its weird that those state government doesn't align with the federal government	That's the federal system. It has its challenges. Its really tough. One of the really important part was just forget about the government and do it anyway.
The Victorian government, are there relationships there, with politicians? To help with the funding	They don't have the same amount of moneys that the federal government has, not the serious money that we need to be progressive. No budget.

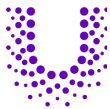
Small talk / end



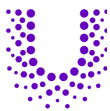
## Interview 6: Edel Wyse, CEFI Ireland

### Small talk

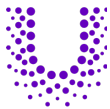
<p>Can you tell me something about the work of the CEFI?</p>	<p>We all work to the governing bodies and to the governance and the controls and management trying to deliver energy solutions, we have to do them in a certain, and also targets we all need to work together for the reduction of our carbon footprint. its like planting a tree; you have to have a proper soil, you have to have the right compost to put on top, and then the tree will grow. For proper energy projects, its all very strategic. Within that strategies, there are work streams. To do that, you need money. You need someone who understands the financial market. And actually how the financially market fit in in the institutional governance. All those kinds of things. You need a technical know how. You need a mind who understand what nog only energy is looking for today, based on yesterday, but what will it look like in the future. Before setting up a program of works, you have to understand the organization your working with. What doi they have, what they footprint looks like and hwo we can work together to deliver something magic. But you also need somebody who has a firm eye on how to manage the ingredients and to the right thing, so you need somebody who's able to manage and direct. These projects, you could have so many perosnalhy types, finance, technical, desingner, you have all those different minds you have to have someone who understands where all the pieces go and make sure you deliver on a proper time line. I think, you're looking at rescourses what you need; you can have all the amounts of the all of the wrong resources, you can have all voices.. and you will fail. One of the biggest lessons for me, is making sure that the right people are in the room together. Just a little bit about my background,.. I say it because I landed in energy, not by mistake, not because I had a job to do. I was a consultant by myself, I worked and supported the NHS body in the UK. I ws working there of the last 6.5 years. One of the project, im a project director with Oxford university hospitals.one of ht eproject I worked on was to deliver a district heating energy project. And I didn't, that was my first introduction to.. we need to do things better. It was an amazing journey, I was introduced to the carbon energy fund on that project and who they were, and I have since that time been supporting them. And a few years ago I wrote this CEO, why don't we have this in Ireland. We need this in Ireland. He was like funny, the irish national health sector, they were</p>
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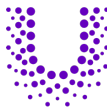
	<p>looking to do exactly the same and reached out to the carbon energy fund to do it with them. So I got much more involved at that point. The HST had a designated department, NHSO, we worked with them nationally to puot together a pipeline of project we could work on and deliver. Very ambitious. We identified a number of projects, We got a MOU to work together. In the UK we have 19 projects, there 19 hospital sites. So I only work in the public health sector and we have some projects in the UK, it had expanded to the councils. So we're now working with the government. And so in Ireland, what we have done, we're at the point at practical completion, first pilot side, we hit contract close two years ago, all the works we is now done, so we're going now in contract with them, and we help manage that contract, that's 15 years, and we've just closed our second contract, which is a 20 years contract. And we'll working on two others, they are still in procurement process. We have identified for a bidder. These project take a very long time. The other lessons learned, is.. dig deep and have patience because these things are not overnight success. But the contract that we have, allows you to adapt, allows variation, we do that, with energy there are new ideas and there are better things all the time. As part of our success, there a few delivarbles we base our framework on. We put together a collective number of contractors, we procure them ourselves, by our framework that is management by NHS. As we move in to IL, we seek to identify a parner to work with us so can next phase replicate that to do that on a irish framework. So there's key things we need and lessons learned. It is important that we have a national framework, so that we work with the local government.</p>
<p>And why is that so important?</p>	<p>So that we understand we national strategies, we know what the national objectives are, and we bring our lessons learns from our previous projects, so that everyone can benefit from that. As part of my work, when I came back to Ireland, was to establish relationships with the health sector, so the right group again is very important that you identify the right people you get at the table.</p>
<p>How do you know who you need?</p>	<p>It is feet on the ground, its meeting its interview, talking its listering, its understanding who works in the sector, who do you need. You very quickly identify who are the drivers of change. You need the drivers of change. If you don't have someone who is as enthusiastic as you are, there is a type, there is a organization type and that is people who achieve, you need achieve.</p>



<p>that sounds like quite an important skill?</p>	<p>the thing is, it a dedicated market. You very quickly establish who it is you need to work with do deliver project. Everyone has the same end goal, by respecting the governance at the back at all of this, and understanding how we do that, we just hit a very big milestone in Ireland, where the... we worked on was actually Eurostat compliant. That was the very first in the country. We understood that we needed to work with the statistic .. who managed the Eurostat relationship for contracts, work with that together to ensure that that set of criteria for.. or not.. nobody understands it better than they do. We worked with them to ensure what we were presenting and working with was compliant. They are the CSO office, they are a national statistic office, they feed in to the treasury, what the significance is, is has to do with the national balance sheet. Are you familiar with that?</p>
<p>No.</p>	<p>it goes back to those work streams. Understanding is part of regulation, in order to be successs; what do you need. And with Ireland, in response to the financial recovery, we need to understand our national balance sheet. We work in the national public sector what they don't want is feeding project with no knowledge of them, and then it is impacting the national balance sheet, we cant do that. So having Ireland in a course to Europe.. what we actually done is that we have been able to contract a contract that doesn't impact that balance, but we are investing private money, 15 million into effectively the irish economy in a compliant way. It comes back to our work streams, if you purely look at energy and you are a technician, you don't want them to think about that necessary requirement. So having different workstreams, understand the landscape, make your connections, communication, really important. And there a other people who are not necessary around the table, but who would be able to support or influence, so we like to work with the SCAI, a support system with energy projects. They are very helpful. They introduced us with a lot of research projects going on, a number of institutional, learning, academics, where I met matthew, matt works with SCAI as well, so all those dots.</p>
<p>What I hear is that you are really emphasizing those relationships, those heterogenous relationships. What are most essential</p>	<p>You need a champion, a project champion, somebody who can influence the decisionmakers say yes or no. when you are developing and designing a scheme, you have to bring it to the organization board, you need an influencer who is able to make it happen.</p>

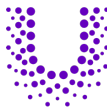


capabilities here, to have on the table, what would you say	
which decision maker?	<p>This decision makers and the champion has to have to be on the team. They are going to convince the board, so you need the champion to do that one voice who can do that. That is sometimes very difficult, to have that level of influence to get their attention, to convince them to buy into, because its energy. When you are working in a hospital, their core focus is patients and patients delivery. Not really necessarily how the machines work, what is keeping the place going. It is a challenge to get the right voice and the right influencer to get the on the project team. And it isn't always necessarily someone from the stakes/facilitaty team, when I say stakes at facility, that's where energy sits. Even if you are not working in the public sector, energy is the boiler of them. Energy is light, maintenance, its not money, its not finance, its not governsnce, its not clinical delivery. It's not sexy. It's really difficult the get the right person. And again, to deliver one of these projects, its not just energy. Its how you are going to fund it. Its money. Its what regulations are out there, what does the contractor look like, whats legal. What does its design look like. What do we need. There is your engineering. Its how are you going to get all of thsse people listen at each other at the right time and deliver the right project. Its project management. Its stewardship. Are they doing it the right way. in the good old fashion way, you need a project director, you need to understand how everything works and that... As again, you can have 50 people around the table, if they don't have those skills, its not going to work. There's about 6 or 7 people key people</p>
Would you also say that experience in the sector is crucial?	<p>Absolutely. Again, what we do, we have a lot of sites in the UK, the benefit of that are the lessons learned. Whats also important is post project evaluation. What went wrong, how could we have done better, and bring that to our next project. And these... all of the time. Its quite an innovative space. The project that I was doing 5 6 year ago, there were so many fresh new ideas, you need to bring them, a lot of projects need to be refreshed. And you look at that a few years on, how can we improve what was in that few years. The contracts needs to be versatile, there's a few key things that makes this work. It's the risk. The weight of the risks sits with the contractor. So we have transferred that to the contractor. And if the contractor does not deliver, they are ... for that. There's mechanisms the key performance indicators that are</p>

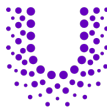


	<p>mechanisms in the contract that identifies what that looks like. The ownness of delivering. And introduction of new innovation when the time goes on, sits with the contractor. They need to be able to bring in something new. We need to be able to encourage them to do it in the right way. Our contract, we reward them, we do a reward share. Each contract is a underlying guaranteed efficiency that the contractor has to sign up to. If they want to sign up, it has to make sense to deliver. The efficiency has to be more than the cost of delivery. That is what makes it work. And those efficiencies the company has to guarantee them. If they fall short, they have to refund the organization. When you bring on new innovation, theres a gain share, delivering better and itnroduction more efficiency, they get to keep some of that. It has to be real, it has to be true, it has to be at no other expense. As part of contract, we always do a performance and ensurance mechanisms, to authorize the contract, and that is something that the CEFI do, to make sure they do exactly what they said they were doing to make sure that the hospital gets what it is paying for. That quality ensurance is really essential. Experience with, say lets your doing a comparator, some projects that song have that ensurance piece, are not able to get that aquitencies under the contract.</p>
<p>this whole market was immature, did you fill a gap there?</p>	<p>It's interesting, what stimulated that market. It really was competition. <b>It was introducing a successful model</b>, from a different jurisdiction, moving in, saying guys, on the ground. <b>If you don't want to work in the same way we work, we gonna some find somebody who will. We work with organisations, we work with contractors who do. Just a little experience</b>, in September, 2017, we were kicking off the .. hospital project. We always do an open day, we invite the contractors in, to meet the hospital, to walk around, have questions, it was a lot of Irish contractors at that time. It was funny, what are the irish contractors like; we were describing a model, risks transfer, underwriting the quarantee savings, what the team was like, the performance and ensurance piece to make sure that the contractors behaves. <b>It was much more collaboration</b>; the contractor was a partner, sat around the the table, was viewed from the hospital as part of their own. One of the contractors actually said; you are never going to get Irish contractors to do that. You wont be able to do that. I said: Than you have no business being on our framework. That's how we do things. <b>Our framework has organizations from the UK, America, we have thinkers, we need global thinkers here, so we're gonna do it.</b> You have to stimulate that market. Like you have to jump on, otherwise you're going to get lost. <b>Change is really</b></p>





	<p>important. Change management. It comes from those key things. That's an example where change is really important, holding hands and we're going to do it. It has to be tough, it has to be tough from there. And so now the Irish market is seen that it can be done.</p>
<p>Change management; you guys were the ones who defined the rules of the game..</p>	<p>: that comes back to your point earlier. We had the confidence to say that change would work because we had the experience. A proven track record.</p>
<p>Confidence and experience also make up for some kind of authority</p>	<p>We're just enablers. It's important to understand our role in this whole thing. What is our position. It's huge, it's enormous. We are enablers. Our team is very small. CEF and CEFI is very small. But what we have collectively, is the right expertise. We have someone who manages the financial market, works with the financial market to make sure we get the best rate. We have someone who is quite a genius, he understands contractual issues. He understands the regulations, he ... all the time on the regulation. So we have our in-house counselor. We have guys who have an appetite to do things better. The wild and the wacky. They love how they can work and see in real life. We have technicians and engineers. They are focused and specialized engineers. If you become unwell and go to a doctor. The doctor says; you need to go to a cardiologist, you need to go to an orthopedic surgeon. He knows there is a problem. We have the cardiologist. We have the orthopedic surgeon. It's those experts in the area. And they continue to study the academics as well. So we have the academic thinking, and we have the engineers who love to deliver who love to develop and design those solutions. We have experienced project managers who have been working in the industry for quite some time and are able to deliver and knowledge share. One of the big ingredients for this is knowledge share. Absolutely, in all of my presentations I give a focus on knowledge share because we never stop learning. The day we think we know it all, we fail.</p>
<p>Can you give examples of those new collaborations?</p>	<p>Some collaborations will fail. And that's okay, if there is a success rate, someone succeeds. We are enablers of change. We are drivers. We don't do it. We are relying on our contractors to deliver those solutions. It's an output specification. We look at contractors and say: what are you going to do to make this better for the hospital. You are working in the sector the whole time, that is not the poor business of the organization, it's your poor business. What are you going to do for us.</p>

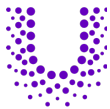


<p>So you are challenging them</p>	<p>Completely. And we don't work from a boiler plate solution. We don't have template what works. Everything needs different thinking, needs a different solution. If you are going to ... one size fits all. You will fail.</p>
<p>And you mentioned a national framework, how does that interact with your framework</p>	<p>our framework just keeps a ... it comes back to institutional, governance. When they are on the framework, it's a framework that says; these are the rules, you have to play by the rules, its safeguarding, otherwise your out. Also to be on the framework, you're tested. How strong are you, are you able to deliver, do you have finance behind you, do you have the experience, these things are 15 m 10 m. There not huge, not too small. Its making sure that everyone understands, one of our requirements says, you need to be Eurostat compliant. When we go out, Eurostat compliant, we know what we expect of you. If you change the game, you're out.</p>
<p>Are there also institutional barriers, that are not facilitative enough?</p>	<p>Its difficult because the laws that are in place, the governing bodies, are happening to consider a whole lot of measures and influences than we would understand and know about. I think you have to have the element of trust. What I like about the institutions is that, if we strongly felt that is something wrong. We would be able to say that, we would be able to have solution. I think that rules are made collectively, out of a number of juristinctions, I mean I like them, I won't criticize them because I do believe they are needed. if there's one thing that needs proper management is a stronger partnership between private and public. In terms of funding, The public sector has had disastrous relationships with private funders, and private funding initiatives, instead of learning from the these experiences and putting stronger measures, they shut them down. They are shutting down a funding resource. If there was an area to improve, than that is the area I would look into.</p>
<p>do you have any ideas of that?</p>	<p>Rules of engagement. I don't think they are strong enough, risk share isn't right.</p>
<p>what do you mean with that?</p>	<p>If something goes wrong, the public sector loses out far quicker than the private sector. I think that balance is wrong, that review needs to be done. Instead of saying no, i think there needs to be clearer view of rules of engagement. There are institutional barriers, I just don't think they are poorely places. With the framework, you have to have do's and don't</p>
<p>what do you need from the system</p>	<p>Again, it comes down to a .. champion. Somebody who can drive change. Its getting increased a voice, more visible, but</p>



	<p>again, it isn't, there's definitely not enough... I think its growing, finances has been around forever public health has been around forever, its an emerging portfolio it is one that affects all. We need a real champion. Ireland has been to a period of political instability. We have a green minister, that's a wonderful opportunity to deliver more.</p>
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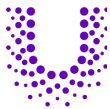
End / small talk



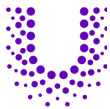
## Interview 7: David Mackey, CEFI Ireland

### Intro / small talk

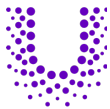
<p>You have grown into a quite robust of organization.. what is the main resource of the CEF?</p>	<p>People. What we have in the CEF are three people who are very much into the entrepreneurial mindset who have an idea, they are passionate what they do, they believe in what they do, it's a process, they have energy efficiency and have carbon and... probably set the money. And these guys they have an idea, with the CEF, they give a business context around it turn it into and what is a tradable... each majority its very much an ideas business.. we have an idea, we convert that into something that is transactable, a contract, a procurement process. Its constantly evolving. And as the energy landscape changes. And I have been in this energy efficiency energy contracting for 12 years. So its quite.. what we do is taking the knowledge we all created and make it work. There are many ideas that actually work but they are not transactable, not fundable, you can't procure them, how do you demonstrate... for money, all that stuff. Our specialty the ability of linking it all together, we've been able to link together what is an effective energy performance contract, procurement aspects, construction element, feasibility, we do the... legal sides that comes with that. There's a capitol from the market that invests in the project. Its that whole thing, you cant say its one thing. Our product is the ability of all those things brought together, that's what makes it robust, a robust framework.</p>
<p>you said your main resources were people: do you refer to their skills or their expertise?</p>	<p>its very much people skills. We have a mix of project experience, finance experience, investment experience, legal experience, procurement experience, we have engineers, everything in and around. Different from the typical entrepreneur business it that we're, our average age is 55 I think. We're more.. the other directs are 54 and 63, im the young one. We generally have people who have been around the block for a few years, got a lof of experience and probably taking people who worked in corporates, law firms big engineers. they get fed up with.. the port, we generally take those sort of people who all are.. we give them the freedom, we have a flat hierarchy, anyone has a say to make the business move forward. They come up with.. we use their experience to trying to evolve. There's a lot of that in it. We actually have been.. since the beginning, 6-7 years ago, working from home. It wasn't a necessity, we live allround the</p>



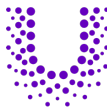
	<p>country, we work from coffeeshops. For a more mature people in the business, its quite dynamic. We're on teams, a year before Covid, all that sort of stuff that seem new now, we have been doing for years.</p>
<p>So what I hear is that you have this.. group of people, bring them together and a lot can happen</p>	<p>You have framework and contraction.. of doing this. So your hiring their expertise around that structure and then give them the ability to go and deliver. A lot of business have a really good concept but no experience. They spend so much time to have the perfect structure, perfect documentation, they do this for two years before they generate their revenue. You need to mix with the people who are quite process driven to have the ability to build on open market, its something you cant teach, you need people who have a .. to do it. You link them all together and then you have something that is quite...</p>
<p>How did you bring all these people</p>	<p>Been working on the public sector side, during and behave the public sector, worked for the NHS, he had done 10 projects, so he had an idea how he could make more of it. Then I came in, it was a process without no real business structure behind it. You have the idea, you have a few people, and now we have 25 people in the UK and Ireland. Ireland mainly got their expertise from the UK, they became a... operation. We generally have, when I used to work in the private sector, ive been doing projects for the NHS, some of the guys they came and asked me if I would join them and set up a fond with anyone else as well. So were looking to fund energy efficiency projects. This is the short term thing, we... and look at where we are now. We keep up what is manageable with a good set of people. I don't want to run 50 people in the field. Everyone still operates, still had a day job and does the management role second, its still quite kept in that sort of format. It will stay that way. I don't wanna grow out, doing corporate stuff all the time.</p>
<p>Authority, how has this experience helped you to become this authoritative</p>	<p>There's a procurement framework, it's basically has the ability to procure things on behalf of the public sector. The framework would be owned by..the framework would be a proper set of contractement authorities. They sort of set the... they are the link in the entire framework, they own the framework, we manage the framework. Companies bid for the work, they bid for the FW&gt; they have 4 years, projects we bring in go to the FW. Contractors have a number of people that are qualified of what they are, or the minimum size of what they are, they bid for the project. They know what they</p>



	<p>are up against. They also know that the projects we bring in, are robust. Setting up a new contract, you always have to gone on and see, the people in the health sector, there's other stuff, tell them what actually happens. Ultimately want an energy performance contract, we create a fund, we get 150 million, they are.. there's funding available for projects. Then projects don't happen, why is this money not being deployed. The next year, put another million in, and we pay for feasibility work to be done, and then other projects, they are not making their returns. Third stage, we come along we will go for feability, we make it into transactable project, we get it back to the fund and the fund can fund it. That's why we went to Ireland. We were able to demonstrate how it works and what we do. Typical projects take 4 years, we did it in 9 months. There's all of a sudden, you've done. 50 million euro projects. Then you have bidders.. and they will come. And people come who want to do with more, you start with a fund, then you get more banks.. then you are creating a market, you build the market. You are seen as the founders.. you almost gonna say why didn't you use the CEF.</p>
<p>: you created a market there, you challenges contractors</p>	<p>everyone ... complexity of trying to do one. Contractors don't take any risks and they transfer the risks back to the PS, the PS doesn't understand it, something happens, it doesn't work, there is no budget to fix it, contracts say that it is not my fault, they need more money to fix it, all of a sudden the equipment sits there for 5 years and then they dump it. People bring in projects for the sake of bringing projects. They want to do something, you go through all the stuff, Tesco's, Marks and Spencers, a lot of project went really bad, just to demonstrate they were doing stuff.</p>
<p>EDEL also mentioned that there was no cooperation between PS and PS</p>	<p>they never do, the public sector won't even cooperate between itself, the HS doesn't cooperate with... the ministry justice. You could put 3 or 4 different public sectors on the site, and they will not cooperate with each other</p>
<p>would you say that the CEF facilitates partnerships?</p>	<p>All the time. You have to demonstrate that is it financially beneficial to cooperate, then they start to do it. Without that, they don't really care so much. More worried about having power than receiving money.</p>
<p>So you demonstrate that cooperation can be much more effective then</p>	<p>We demonstrate the benefits of scale. One way to do it, you gotta acknowledge the barriers you're in. the way to this, the barriers enters the new plan. G collaborates overhead, now ... two things, and then.. why wouldn't you do this. You have</p>

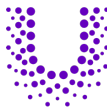


<p>everybody staying on their won island.</p>	<p>to create that. They won't do that individually. Each public sector organizes.. if you convert this into the private sector, which is multi cross divisioned, with then..PLC's have the same issues because they got their own... If they have individual profit ... they are not going to do it. So you have to give it that, it's the same in division, and larger PLC's. You have to consider that, you would think the in the PS, you don't have shareholders, people are more interesting in collaboration, but that is not the case</p>
<p>How did you gain insights in the needs of the health sector, since their core sector are patients</p>	<p>We approached them, found out who to speak them, and we spoke to them. Business is as simple as that, you find the right people you have to speak to. If you have the right thing to say, people will listen to you. I don't think we must... in Ireland they were thinking about doing that their selves, they found out how we had done it England, and they knew they have to speak to us. We spoke to someone of the organization they said well somebody else is already looking into this, then we had a discussion and then we got in touch with the hospital, who were struggling to get a project over the line, we got in touch with them, spoke with them, then the project started to roll.</p>
<p>Which narrative is used to make the people participate</p>	<p>The general narrative is that they got tired of it. And that they want to reduce carbon and they need to reduce carbon and it doesn't cost them any money so we needed multidue project to reduce carbon, that is not going to cost them any money. That's the wider market, then you need to spin the dime on a local, project level, and then the project team, the message you say to the finance director or the CEO, is going to be different than the engineer. You need to have this broader, because its quite complex, you need to specialize it in, if you are going to talk to an engineer how finance works, they have no idea. Same way if you are going to tell them if you are going to reduce your heating with 5MW, at an early stage you need people with a broad skill level, that covers multiple factors, and then specialize, the real skill with the CEF is the ability to bring it all together, which is the engineering, construction, finance, bringing it all together.</p>
<p>what were the most valuable relationships rolling this thing out in Ireland</p>	<p>Most of our stuff, we don't do that market, we will do all our stuff, the market strategy we approached is a knowledge based approach. We will very much put stuff out, we write... write engineering pieces, write guidance, technical engineering guidance to the NHS, we put a strategy in the market how they hit zero carbon in 2050, we put people up</p>



	<p>for committees, lots of stuff in question time things, finance side of engineers always ask... We put people out there, we don't sell ourselves. We do case studies, back storage of solar, we do this sort of stuff, we run the energy stuff on behalf of the professional bodies, especially in the UK we get asked, we're not marketing people. Marketing in the PS doesn't really work. We bring people in, trying to make things happen</p>
<p>: Do you also work together with the Irish government for example,</p>	<p>Yes and no, that's the next step. We signed an MOU to work with them with the health sector. Now people are starting to realize what is happening, they start to get involved, we also work with the CSO office, we work with them, we work with different parts as we move forward. You have to be careful with the PS, you tie yourself to one set of people, they change every three weeks, you sort of put yourself at risk, we don't get massively involved, we do when it comes to financing and...</p>
<p>Edel also said something about Eurostat</p>	<p>It's the ability for us to fund projects that are not on the country balance sheet. Which is quite unique, its on of our USP, weve done it nin the UK for years, weve done it in Ireland, its the first time we did it in Europe. They are interested in Europe as well, they send people to the government to see how they do it, they don't do it, we do it. That means, if a country wanted to.. Holland want to do a billion energy fund contract, they are off the limit regarding the amount they can borrow, cause Germany and France told them not do. Eurostat are not balancing contract, they are not on the balance sheet.</p>
<p>Were there instutional opportunities in the field with regard to funding, collabs, partnerships for the CEF?</p>	<p>Yeah we funded all the projects so far in Ireland. Funding is .. they really .. probably funded by 300 million in the UK. The funding market was not advanced in the UK. We had to set a lot up as well. Now we have a couple of funders in place, we have a funding competition and market tests, which is easier, nobody wants to be ..... They realize if they can fund it, we can fund it. We had a... especially as someone new. interests were high and terms were low, wen worked that through, we ended up with someone who had a UK.. office, we were able to smooth that over with doing it that way. Lots of people became more interested...</p>
<p>Can you say something about timing?</p>	<p>We learned from the mistakes a little bit, ideally you go in and say, this is how we are going to do this. But people will come in and say that they can do it better. For the fact that</p>





	<p>they tried it, they created an IEF fund, they didn't fund any project, and they didn't have any money for feasibilities, what are you gonna do next, we don't know, you know this is what, you pushed an open door there. There is timing, there is all this stuff. You need to get the right dive, right time, right message across, someone needs to buy into you at a personal level business level, and then they have to trust you enough to get the business forward.</p>
<p>What are the future plans</p>	<p>We need to grow out of Ireland, we've been helping the UK, more decentralized, more personal... approach where we link a lot of assets together. We create an more integrated approach across multiple sites. It is constantly changing, decarbonizing grid, gas, we keep ahead in that way, the projects wont be that many, but we have done more than enough.</p> <p>Personaly types, people end up in jobs, personality types of people behind the jobs, in a management role you don't use your business skills, but personality types.</p> <p>You need people, new markets are difficult, your idea is new, its not proven, you cant point it in proven, they have to trust you, they are taking risks.</p> <p>Entrepreneurs are generally not the right people to get bored</p> <p>People who are able to look at this, look at multiple aspects and .. you have to have people understanding, a few things that we do, you talking to a pension fund, talking to an engineer, a lawyer, you keep speaking them all of the same time. You have to have the ability to simplify the whole thing, bring it all together, that they can all understand individually and collectively. And that's a skill that many people... people that have a detail focus cant do that, they can not get past.</p> <p>The good ones do it,m the better on better understand it and bring in other personality types and then you have something sustainbale</p>

Small talk / end