Conditions for growth in renewable energy industries (RenewGrowth)

1 Relevance relative to the call for proposals

The proposed project will focus on conditions for growth in renewable energy (RE) industries, motivated by two critical challenges. First, limiting global warming to below 2° as agreed by the COP 21 will entail massive deployment of renewable energy technologies (RETs). Second, increasing economic and sustainability challenges call for build-up of new green industries to facilitate further growth and welfare, also in Norway. As one of Europe`s large energy nations Norway stands at a turning point. Challenges linked to declining prices and activity in the oil & gas sector, the need for new industrial development and the opportunities inherent in the ongoing energy transition characterize the current situation. Global RE investments in 2015 amounted to $265.8 billion – more than double that of gas and coal. And for the first time RE (excluding large hydro) represented a majority of new added capacity with 53,6% of installations in 2015 (UNEP/BNEF 2016). Global RE growth provides vast opportunities for Norwegian actors developing and supplying products and services. RenewGrowth thus engages directly with the call and will generate new knowledge on the conditions and key processes that support Norwegian firms and policy makers in realizing technological and industrial development linked to the rapidly growing international RE markets. We pursue an interdisciplinary approach, and engage with users, to analyze conditions for development and growth of new green technologies. In scientific terms the project contributes conceptually and empirically to the technological innovation systems approach - a central approach in the field of sustainability transitions literature.

2 Aspects relating to the research project

Background: challenges for growth of RETs in Norway

The project team for a long time has pursued research on innovation in RE. RenewGrowth builds upon this research. A key finding from this research is that while Norway has fostered nascent RE industries, critical challenges remain with attaining growth beyond formative phases. Some of the challenges identified in our previous research include small average firm size, few large firms that can function as drivers of demand for smaller firms, key barriers linked to access to markets and capital and perceived uncertainty in policy framework conditions (Normann & Hanson 2016; Weaver & Steen 2013). Thus, while Norway actively promotes the development of new RETs, in particular through public support of research and development (R&D) the desired growth in industrial development seems laggard (Hanson, Kasa, & Wicken 2011). A main aim of public support of R&D is to provide a foundation for new industrial development and value creation (OED 2016). Development of RE technologies related to the global energy transition and markets are key topics both in the domains of research and energy policy (KD 2014; OED 2016). The project thus addresses challenges with realising growth and industrial development in RE.

A first particular trait of emerging Norwegian RE industries, is weak growth in domestic deployment (despite vast natural resources), largely due to the dominant position of hydropower, which constitutes a key challenge to many firms, and small firms in particular (Hanson et al. 2011). Normann and Hanson (2015) in a survey of Norwegian solar photovoltaic (PV) and offshore wind (OW) firms observe that predominant shares of resources (in terms of full time equivalents) are targeted towards foreign markets. Given absence of domestic demand a key question is thus how Norway as a small open economy can foster industrial growth and take a stronger position in the globally developing technological field of renewable energy? Build-up of strong transnational linkages in terms of access to markets and other resources plays a key role.

A second particular trait is the presence of old firms with main activities in other sectors (such as oil and gas for offshore wind and energy-intensive industries for solar PV) diversifying into RE (Normann & Hanson 2015; Steen & Hansen 2014). Relations to established industries play important roles in early-stage formative processes, as new industries provide opportunities to reuse and modify key

knowledge bases as well as other resources (Hanson et al. 2016), but these companies have not succeeded in scaling-up of production and achieve further growth. An example of this is that diversifiers in OWP see RE as an auxiliary market which may play a role due to volatility of oil markets, but should not affect core O&G activities (Steen & Hansen, 2014).

A third particular trait of RE industries in Norway are fluctuations in political commitment (Normann 2015). Political signals and incentives for the development of industrial activity related to for instance offshore wind strategies, electricity certificate market, and biofuels incentives have been unpredictable and lacking long-term perspectives. This has led to an investment environment characterized by uncertainty.

Conditions for growth in new green technologies and industries in Norway thus span contexts of geography and transnational linkages, related industries and politics. Existing research does however lack systematic knowledge of the precise role of the important context conditions noted above, both in conceptual and empirical terms (Bergek et al. 2015). The identified challenges linked to conditions for RE growth in Norway thus relate intimately to corresponding gaps in conceptual knowledge. As argued by Krafft et al. (2014) our understanding of how new industries and technologies emerge and grow remains limited. More specifically, Forbes and Kirsch (2011) note that there is a limited amount of studies and development of suggestive theories that explain industry growth and relations to contextual conditions created by factors prior in time. We address this empirical and conceptual lack of systematic knowledge on the role of conditions for industrial development. The main objective of this project is thus to generate knowledge on conditions for building strong and internationally successful RE industries.

Approaches and status of literature

We approach this by applying and contributing to further development of the technological innovation system (TIS) approach - a popular framework for analyzing how new technologies emerge and grow (or fail to grow) (Hekkert et al. 2007; Hillman et al. 2008). Innovation and technology development is here seen as an outcome of (direct and indirect) interaction between actors and networks, guided by institutional frameworks, and conditioned by the strength or weaknesses of a set of key processes. However, the TIS approach has been criticised for being myopic with lacking attention to contextual relations (Markard & Truffer 2008). This critique has been met by Bergek et al. (2015) who suggest that TISs relate to, and are nested within, geographic, political, sectoral and technological contexts. Individual technologies (such as PV or wind) are thus affected by their broader contexts (such as dynamics in the electricity sector or political battles over direction and extent of government support). Distinguishing between context structures and between TIS context is a matter of analytical choice and empirical results, given that structures may overlap. So far we do however have limited knowledge of the precise dynamics of interaction between focal TISs and context conditions, which leads Bergek et al. (2015) to call for conceptual strengthening and more empirical analysis.

The project follows up the call for conceptual and empirical development in the TIS literature by focusing on three context conditions in particular; political, sectoral/industrial and geographical. First, because we focus on emerging RE technologies, policies that protect them from competition from established industries and technologies are necessary (Sanden & Azar 2005). The types of policies introduced in different contexts therefore represent an important condition for industry development. A key objective of TIS research has been to suggest potential avenues for policy intervention, with the goal that these ideas are picked up by policy-makers (see for instance Jacobsson & Bergek 2011, p. 42). Yet, policy is rarely the result of policy rationales translated into policy. Rather, policy tends to be the outcome of political conflicts, negotiations and power struggles (Avelino & Rotmans 2009). Thus, more recently, innovation scholars have turned their attention to processes that underpin introduction of policies that promote new sustainable technologies (Geels et al. 2016; Kern et al. 2015). In this part of the project, we will draw on recent work on the politics of sustainability transitions and analyse actors' strategies for influencing policy.

Second, we focus on how established sectors and industries condition new industry creation. Our main focus is the key opportunities and barriers for facilitating linkages between emerging and established industries. While, start-ups play important roles in innovation system dynamics, firms in established industries often pursue innovation along multiple paths (both established and emerging) and contribute to emerging technological fields (Bergek & Onufrey 2014). A key factor determining such diversification processes is relatedness (Breschi, Lissoni, & Malerba 2003). In some instances, established industries are sources for creation of new industrial paths (Garud & Karnøe 2001). However, established industries and incumbent firms may also constitute key barriers for emerging industries (Geels 2002; Smink, Hekkert, & Negro 2015). For instance, fears of cannibalising main activities, may lead diversified incumbents to refrain from full commitment to new activities (Geels, Hekkert, & Jacobsson 2008). Established industries may play both constructive and obstructive roles. A further objective is thus to analyze how established industries and incumbents differ in how they contribute to the build-up of emerging industries. This will contribute to a nuanced understanding of incumbents` role in emerging TISs.

Third, new industries often emerge based on established industries and knowledge bases embedded in differing geographical contexts (Boschma & Frenken 2011). Analyzing national industries in isolation downplays important dynamics occurring in other nations or at the global scale. In turn, this may have important implications for policy strategies. Relevant for our study is the observation that individual countries do not necessarily need to develop entire supply chains domestically given the international dimension of TISs. System functions, such as market formation, developing in one country can spill over through transnational linkages and have effect on TIS dynamics in other countries (Gosens, Lu, & Coenen 2015; Wieczorek et al. 2015). For instance, Quitzow (2015) observes that the Chinese PV industry developed without the presence of a local lead-market but relied strongly on market growth in other countries. As a result, weak functionality in one country might not be problematic for the overall performance of the innovation system because transnational linkages complement for partially weak functionality at the national level (Binz, Truffer, & Coenen 2014). However, coupling onto emerging TISs is not straightforward as access to markets or investment capital is likely to be affected by geographical location (Coenen, Benneworth, & Truffer 2012). The analysis of how differing nationally delineated TIS interact is a promising way in which geographic dimensions may be integrated in the analysis (Quitzow 2015).

Research questions

Following the call to further elaborate empirically and conceptually on TIS context conditions and the approaches to explore the three context dimensions suggested above, the main contribution of this project will be twofold. First we provide new empirical insights into the challenges and opportunities for RE growth in Norway. Second we contribute to conceptual development on how context can be integrated into TIS framework.

The project's overall research question (RQ) is: *How can strong and internationally competitive new renewable energy technology (RET) industries be built in Norway?* To answer this question, insights from the conceptual development and analyses in WPs 1, 2 and 3 will be used to develop a model that allows us to integrate institutional, industrial and geographical context in TIS analyses in WP4. We will turn this model into a practical guide for firms and industry associations to increase the success chances of Norwegian renewable energy industries.

Following from the suggested approaches to the three dimensions of context conditions outlined above we pursue the following sub-questions:

1. What is the status of development of TISs for RETs in Norway (WP1)?
2. How do industrial and institutional contexts condition growth in nascent Norwegian RE industries (WP2)?
3. How can emerging RE industries develop transnational linkages, in terms of access to markets, knowledge and other resources, in order to pursue growth (WP3)?

4. How can we develop a conceptual model for industry growth focused on the relations between context conditions and TIS dynamics (WP4)
5. How can RE actors collectively strengthen efforts for further industry build-up and articulate needs to policy makers (WP5)?

3 The project plan, project management, organisation and cooperation

Echoing the project's research questions, the project is organized as five work packages. WP1 analyses focal TISs and builds a database of emerging Norwegian RE industries. Following the Energi21 strategy we map in depth two priority areas linked to new renewable energy: offshore wind and solar PV. Data in WP1 is quantitative and based on available statistics, ongoing data collection at TIK (survey of OW and PV companies from 2015), as well as new surveys. WP 1 partially serves as the empirical foundation for the other WPs. WP 2 and 3 will focus in depth on selected technologies. Case selection will be made with regards to analytical relevance and compliance with the Energi21 strategy. WP2 and 3 are based on technological innovation systems theory and additional qualitative in-depth interviews with key actors. WP4 develops the conceptual model of project, synthesizes the work in WP1-3 and draws conclusions for strategies and policy-making. WP5 communicates and disseminates the results from all WPs to relevant firm and non-firm actors. An important part of WP5 is the establishment of a technology forum with project partner INTPOW.

WP1: Mapping RE industries – WP leader: Taran Thune (TIK)
Objective: Research question no. 1
Contributors: post.doc2, Jens Hanson[1], Taran Thune, Researcher Utrecht
Method: We analyze focal TISs and build a quantitative database of actors in RE industries to use as a base for determining linkages to context dimensions analyzed in WP 2 and 3.

Task 1.1: The main objective of this task will be to update knowledge on the current structure of the focal TISs of offshore wind and solar PV. This task will build on methods and data collected in related projects (CenSES, SIVAC, InNOWiC) to developed a company level database with descriptive and statistical data on Norwegian RET firms. The database will contain information about economic performance, firm characteristics (size, growth, employees, ownership), and export. These data will be complemented with new data collection in task 1.2.

Task 1.2: Supplementary to available data, we will follow up earlier surveys (Normann & Hanson, 2016) that cover (1) market strategies, (2) current innovation activities and the distribution of activities in terms of position in supply chains, (3) localization of activities, (4) investments (private/public, national/foreign), (5) drivers and barriers for transnational linkages (6) extent and nature of international cooperation and (7) perceived role of policy for growth and internationalization. This provides opportunities for longitudinal studies.

Deliverables:
D1.1 Database serving as input to WP 2 and 3
D1.2 Report on current status of Norwegian offshore wind and solar PV industries

WP 2: Conditions for industry growth - WP leader: Jens Hanson (TIK)
Objective: Research question no. 2
Contributors: Post.doc1 Håkon E. Normann, Marko Hekkert, Jr. researcher Utrecht
Method: This WP will explore in depth the institutional and industrial conditions for industry growth.

[1] On the condition that Jens Hanson takes up the position as researcher at TIK.

Task 2.1: The objective of this task is to explore industrial and firm level conditions for RE industry growth. First, given our previous observations of relations between established and emerging industries in single case studies (see section 2), we systematically analyze the nature and characteristics of how, established industries play a role for new RE industry emergence in Norway. We review relevant academic literature and use data from WP 1 to assess the type of relations between the focal TISs and sectoral context to single out factors that affect the opportunities for knowledge spillovers, technology development and testing, or access to customers for emerging RE industries.

Second, we study how actors engage to facilitate industrial development, in part by attempting to affect their own institutional conditions (Kukk et al 2016). We explore to what extent the emerging industries conform to established or manage to impact change in institutional structures. Data will be collected through interviews and documents (annual reports, industry reports, news clippings) and used to analyze how and which narratives actors employ to support the emerging technologies (Hillman et al. 2008; Smith & Raven 2012). The objective of this will be to reveal how actors attempt to create legitimacy and impact the question of why Norway should develop RE industries. We study differences in the nature and level of engagement in system building activities between specialized and diversifying firms, and to what extent we can observe variations within these two groups of firms. Specifically we aim to analyze how and whether actors with main activities in other industries, contribute positively or negatively to processes of institutional alignment in the emerging industries, including participation in national networks (both learning and political). We apply data obtained in the survey in WP 1, and supplement with qualitative data from interviews. A key novelty of this task will be to analyze to what extent we can observe variations in how actors engage with the emerging technologies beyond the incumbent/new entrant dichotomy.

Task 2.2: The objective of this task will be to combine findings from task 2.1 with findings from a CenSES postdoctoral research project on the political conditions for sustainability transition policies. We first analyze firm perception of policy frameworks to gain knowledge of how firms perceive the relevance and design of current policy tools, and which policy areas firms deem lacking. Empirically we study perceptions of opportunities and motivations for diversifying firms for partaking in emerging RETs, and which drivers and policy mixes that in their perception would increase their engagement. Second we match these findings against the analyses of the political feasibility of introduction of differing policy mechanisms. This will enable us to observe to what extent there are differences or matches between industrial expectations and political feasibility of introduction of support mechanisms.

D2.1 Scientific article reviewing and assessing the role of established industries and incumbents in new industry creation
D2.2 Scientific article exploring variations in actor engagement in system building activities
D2.3 Scientific article on match between industrial expectations and political feasibility of policy support

WP 3: Transnational linkages - WP leader: Markus Steen (SINTEF)
Objective: Research question no. 3
Contributors: Post.doc2, Post.doc1Håkon E. Normann, Jens Hanson, Researcher Utrecht
Method: We analyze how Norwegian actors achieve to build up transnational linkages in terms of access to markets and key resources such as knowledge and capital.

Task 3.1: This task explores how transnational linkages in terms of access to markets and financial resources can be built in the absence of local lead markets. We not only assess this for the entire TISs, but whether and how transnational linkages vary across supply chain segments (for instance between logistics/services and supply of manufactured products). As part of this, we assess how Norwegian firms and resources are distributed and grouped along the supply chains for each case, and whether we observe differences across supply chain segments with regards to transnational linkages.

We further explore how firms' opportunities to link up with international TISs in the absence of a home market varies depending on: 1) industry maturity and 2) technological complexity. 1) While local user-producer interactions have been underlined as important, we explore the relative importance of local market interaction given that is has previously been shown that this will depend on the development stage of the technology (Jacobsson & Bergek 2004). When a technology is standardised and reasonably stable, spill-overs may be more effective across distances and actors in regions without local markets may be able to sell their products to markets in other subsystems of the same TIS (Binz et al. 2014). We thus explore to what extent the ability link up with international markets differs with respect to maturity of markets (pilot and demonstration projects with low degrees of standardisation or larger markets with higher degrees of standardisation. 2) Complexity and structure of a particular industry may also play a role with regards to how firms can create transnational linkages. Huenteler et al. (2015) demonstrate that due to the high complexity of the wind power industry the development of a local industry for wind power is unlikely to occur in the absence of a strong home market demand due to the importance of user-producer interactions at the local level. We explore to what extent this is important across supply chains. Based on data from WP 1, we will compare the industries to explore differences in industry development and internationalization patterns. Amongst others we will explore how firms' opportunities to internationalize varies depending on the maturity of the industry, position in supply chains, size and structure of home market and firm composition.

Finally we also explore some of the actors that Norway has put in place to stimulate transnational linkages (e.g. GIEK, Eksportkreditt, Intpow and Norfund). We assess how these relate to the population of firms identified in WP 1, and the industrial conditions explored in WP2.

Task 3.2: In terms of access to knowledge resources we analyze how Norwegian actors engage in global dynamics that may affect how technological trajectories and maturation processes evolve. Development of knowledge is a key process in TIS formation and growth, and transnational linkages can provide access to such key resources (Liu, Chaminade, & Asheim 2013). We will use the Cordis database to analyze how active Norwegian actors are in international R&D projects (EU projects). A key aspect of this research will be to explore the value added of international collaboration compared to local collaboration.

Deliverables:
D3.1 Scientific article on how transnational linkages facilitate access to international TISs.
D3.2 Scientific article on how the role of transnational linkages differs depending on industry maturity and technological complexity.
D3.3 Scientific article on extent and role of knowledge development and transnational linkages

WP4: Synthesis and conceptual framework development - WP leader: Marko Hekkert (Utrecht University)
Objective: Research question no. 4
Contributors: Jr. Researcher Utrecht, Post.doc1 Håkon E. Normann, Taran Thune, Markus Steen, Jens Hanson, Olav Wicken
Method: WP4 synthesises the insights from WPs 1, 2 and 3. WP1 focuses primarily on mapping the focal TIS, whereas WPs 2 and 3 develop concepts and analyse how TIS development is conditioned by context. The main task in WP4 is to integrate these insights and develop a conceptual framework that allows for an integrated analysis of TIS in context. We focus on identifying and conceptualizing patterns of interaction between the focal TIS and context along three key dimensions. A first issue is to identify factors that influence whether context conditions mainly impact on TIS dynamics or if TIS dynamics also impact broader context (i.e. a bi-directional influence). A second issue is to determine factors that influence whether TIS and contexts interact in terms of close or loose couplings. And third, which factors that influence whether interactions impact TIS dynamics negatively or positively.

The empirically informed model will be used to develop a strategy manual for Norwegian renewable energy industry actors to improve their business strategy. This manual will be used in WP 5, which

will function as a platform to present and discuss these findings and gain further industry input on which factors firms find important or lacking in current policy support for industrial development and internationalization.

Deliverables:
D4.1 Empirically informed scientific paper that outlines a conceptual framework for studying TIS in context.
D4.2 Strategy manual for Norwegian renewable energy industry actors

WP 5: Technology and industry forum - WP leader: Norwegian Energy Partners (formerly INTPOW)
Objective: Research question no. 5
Resources: Olav Wicken (coordinator of the research team), all researchers will contribute
Method: The WP aims to create an interactive research platform with engagement of relevant actors in domains of industry, research, policy and NGOs. The WP will set aside resources to facilitate networking activities by establishing a technology and industry forum. The forum will serve a threefold purpose. Firstly it will provide opportunities for networking and drawing lessons among the different firms and industry actors studied in the project. Secondly, it will be an important input to the research activities in terms of guiding research questions and scope. Third, it will function as an arena to discuss and test the realism and fruitfulness of the suggested implications obtained in WP 4. Extensive interaction with policy-makers and other stakeholders is foreseen during the final phase of the project. The renewable energy industry networking organization and advisory board member INTPOW has agreed to arranging and marketing the events to relevant parties drawing on their large network and professional competence.

Deliverables: See section on dissemination in online application form.

Project management and organization (*CV attached)
The project will be led by the Centre for Technology, Innovation and Culture (TIK) at the University of Oslo. TIK is a leading research environment in Norway for innovation studies, and is the origin of internationally recognized outputs such as the Oxford Handbook of Innovation and the book Innovation, Path-dependency and Policy on the development of the Norwegian innovation system. Development of researching transition studies is part of TIK's research strategy, and 15-20 researchers work in this field, focusing on industrial transformation and creation of new industries. The research group is young, dominated by PhDs (8) and postdocs (4) contributing to the international development in the field of sustainable socio-technical transformations. Utrecht University has a strong track record in innovation and sustainability transition studies, and has made key contributions to the literature on technological innovation systems. The department of industrial management at SINTEF has a strong track record in research on innovation processes, industrial development and regional perspectives.

Management: The project will be managed by Taran Thune (TT)* (TIK) as project manager and Marko Hekkert (MH)* (Utrecht University) as managing conceptual framework development. TT and MH are experienced scholars with high internationally reputation in different parts of innovation studies.

WP leaders and project team: The WPs will be managed by an interdisciplinary and experienced group: Taran Thune (TT)* (TIK), Olav Wicken (OW)* (TIK), Jens Hanson (JH)* (TIK), Markus Steen (MS)* (SINTEF), Marko Hekkert (MH)* (Utrecht University). In addition, the project will employ a team of younger researchers consisting of a researcher at Utrecht University (Jr. researcher Utrecht) as well as two post.docs at TIK (post.doc1 and post.doc2). The contribution of each person is described in the attached spreadsheet.

The project group is well suited to address project objectives as well as interdisciplinary ambitions given their backgrounds in research on: innovation systems (MH, OW, JH), management (TT, MH), university industry networks (TT), geography (MS), history (OW), renewable-energy technology (MH, MS, TT, JH) and industry-networking (Norwegian Energy Partners) .

Project organization: The project team involves researchers in three institutions located in three cities in two countries. This has implications for organization and how we work as a team. To address this challenge, we will organize: (i) annual workshops for all partners, where we also will invite a members of the advisory board to attend; (ii) skype meetings; (iii) virtual infrastructure: sharing documentation/ data; (iv) longer stays at TIK (or other collaborative institutions) to work together on specific parts of the project; and (v) collaborative theory workshops and writing seminars (jointly with Green Fleet-project).

We will facilitate integration of WPs, and of WP 4 in particular, through collaborations on specific deliverables, as indicated in the attached spreadsheet. In addition, post.docs and researchers from TIK and Utrecht will stay at the respective partner institutions one week annually over the project period in order to secure integration. Finally, presentations and discussions on state of the art and roads forward for TIS-context research will be an integral part of the annual project workshops.

Collaboration with related projects (Green fleet and CenSES)

We will collaborate closely with Green Fleet project and FME CenSES by sharing positions and organizing joint seminars. We merge a 2-year post doc position in Renewgrowth and a two-year post-doc position in CenSES into one 4 year position for Håkon Endresen Normann to enable a deeper integration with CenSES on research relating conditions for policies and conditions for industrial development in RETs. We merge the second 2-year position as postdoc in RenewGrowth with funding for 1research year from Greenfleet into a 3-year postdoc position. This will ensure integration between the projects. Synergies are to be expected given that WP3 in Greenfleet deals with TIS-context issues, which is the main focus of Renewgrowth. Finally, we organise joint 'TIS seminars' with the Green Fleet project team (including international collaborators) to discuss similar conceptual approaches and framework relating to differing empirical fields, state-of-the-art in the field as well as potential future avenues for research.

Norwegian Renewable Energy Partners (NREP) (formerly INTPOW): will have a special responsibility to disseminate the project's results to stakeholders. INREP's members are Norwegian authorities, companies and industry participants that expect to expand activities through international projects.

User group (advisory board): Scatec Solar, Kongsberg Renewables, INTPOW, Eksportkreditt. See attached LoIs.

4 Key perspectives and compliance with strategic documents

Compliance with strategic documents: TIK has made renewable energy and transition studies a strategic area of its research programme, and will continue to build up a strong international research group in this area linked to ongoing projects: CenSES, ETIS, InGrid, Rentrans, SusValueWaste and SIVAC and international networks. TIK will also be a partner in Research Centre for Sustainable Solar Cell Technology and in Arena Solenergiklyngen (solar energy cluster) supported by Innovation Norway. See attached LOIs from partners.

Relevance and benefit to society and the environment: See sections 1 and 2.
Environmental impact: Apart from air and car travel in connection with project workshops and industry forums, the project is not likely to have any direct positive or negative impact on the environment.
Ethical perspectives: No conflicts according to research ethical checklist provided by The National Committee for Research Ethics in Science and Technology (NENT).

Gender issues: The project manager in the project is female. At TIK 4 of 7 of TIK permanent scientific staff are women and there is about 50% women at postdoc and PhD levels. We will maintain this, and will strive for recruiting qualified female researchers to this project.

5 Literature

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