



GREEN DEAL – Area 2: Clean, affordable and secure energy

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ISERD – Israel Europe R&I Directorate

- An **interface** between the Israeli government and the EU
- **Encouraging** Israeli entities to participate
- **Representing** Israel in the programme committees of the EC
- **National Contact Point (NCP)** for the different themes
- **Information dissemination**
- **Assistance** throughout projects' submission and management

ISERD aims at maximizing the benefits of
Israel's participation in the Framework
Programmes (FP)

HORIZON 2020

European Framework Programme

- EU's main funding instrument for R&D (since 1984)
- **Goals:**
 - Strengthen the scientific & technological base of European Industry
 - Support EU policies and address major Societal Challenge
 - Create a “European Research Area” (ERA)
- **Covering all major scientific and technological disciplines**
- **Targeting the major European industrial sectors**



Funding Members of H2020



EU MEMBER STATES (28)

 Austria	 France	 Malta
 Belgium	 Germany	 Netherlands
 Bulgaria	 Greece	 Poland
 Croatia	 Hungary	 Portugal
 Cyprus	 Ireland	 Romania
 Czech Rep.	 Italy	 Slovakia
 Denmark	 Latvia	 Slovenia
 Estonia	 Lithuania	 Spain
 Finland	 Luxembourg	 Sweden
		 UK

ASSOCIATED COUNTRIES (16)

 Albania	 Norway
 Bosnia and Herzegovina	 Serbia
 Faroe Islands	 Switzerland
 FYROM - Macedonia	 Turkey
 Iceland	 Ukraine
 Israel	 Tunisia
 Moldova	 Georgia
 Montenegro	 Armenia

Submission Timeline

Proposal Preparation
- Now

Proposals Evaluation
– by
06.2021

Grant Agreement Preparation (GAP) phase (~3 months)

Deadline – Proposal Submission – 01.2021

ESRs sent and winners announced

GA signed – projects start and become public knowledge – by 09.2021

~ 8 months

Israeli Results in H2020*

Submitted Participations		12,773
Successful Participations		1,761
Success by sector:	Industry	762
	Universities	864
	Others	135
Submitted Proposals		11,051
Successful Proposals		1,446
Success Rate		13%
Value of Israeli grants: 1.08 B€	Industry	363.2 M€
	Universities	697.2 M€
	Others	22.4 M€

*[H2020 Dashboard](#), 23.07.2020

Green Deal Mission



“The recovery plan turns the immense challenge we face into an opportunity, not only by supporting the recovery but also by investing in our future: the European Green Deal and digitalization will boost jobs and growth, the resilience of our societies and the health of our environment.”

- European Commission President Ursula von der Leyen

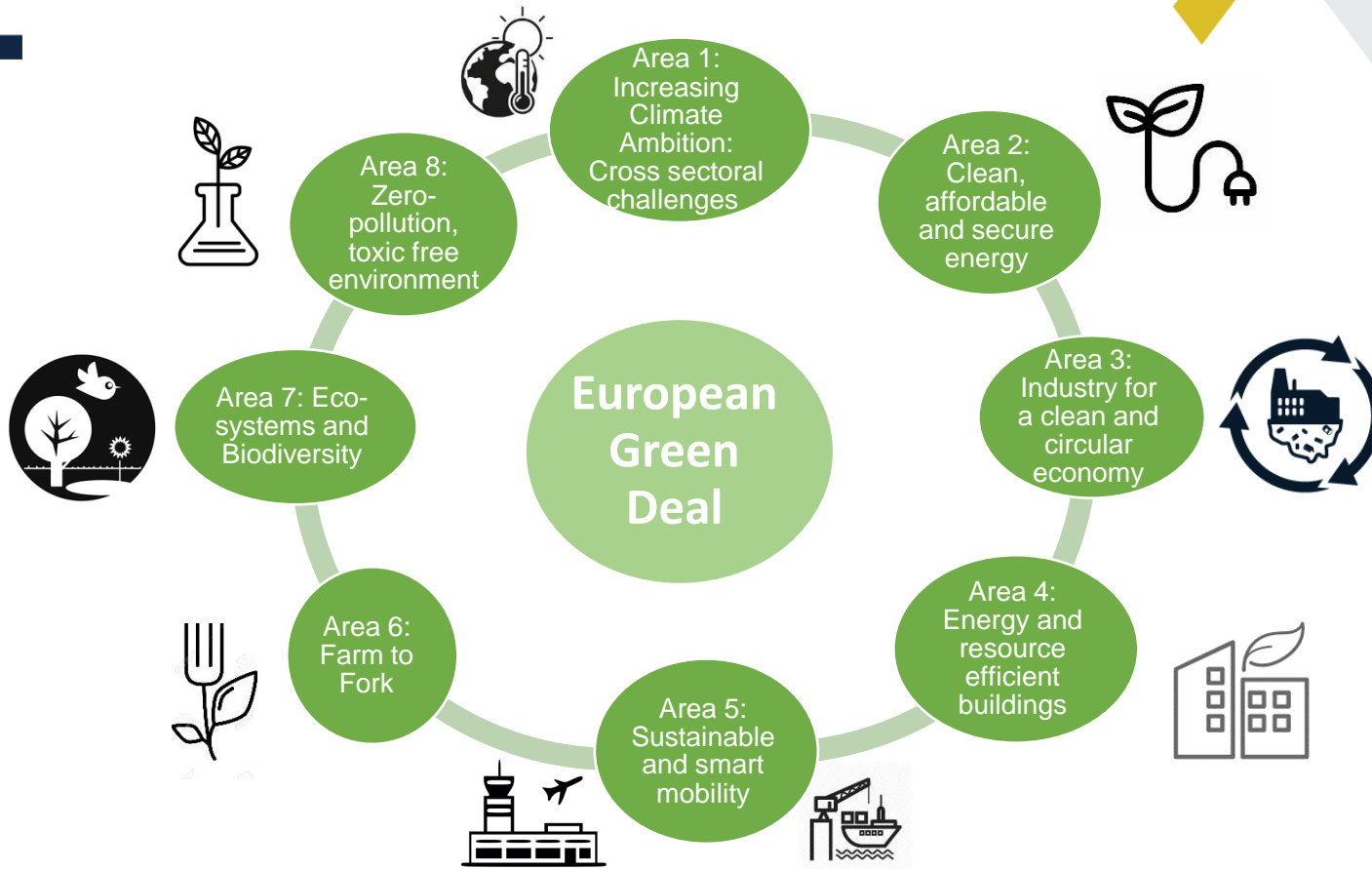
1 Billion Euro is pledged to ensuring this



Green Deal Goals

- Make the EU climate neutral by 2050
- Restore biodiversity and cut pollution
- Invest in environmentally-friendly technologies
- Support the industry in innovating
- Boost the efficient use of resources
- Move to a clean, circular economy
- Roll out cleaner, cheaper and healthier forms of transport
- Decarbonise the energy sector
- Ensure buildings are more energy efficient
- Work with international partners to improve global environmental standards

Green Deal Structure

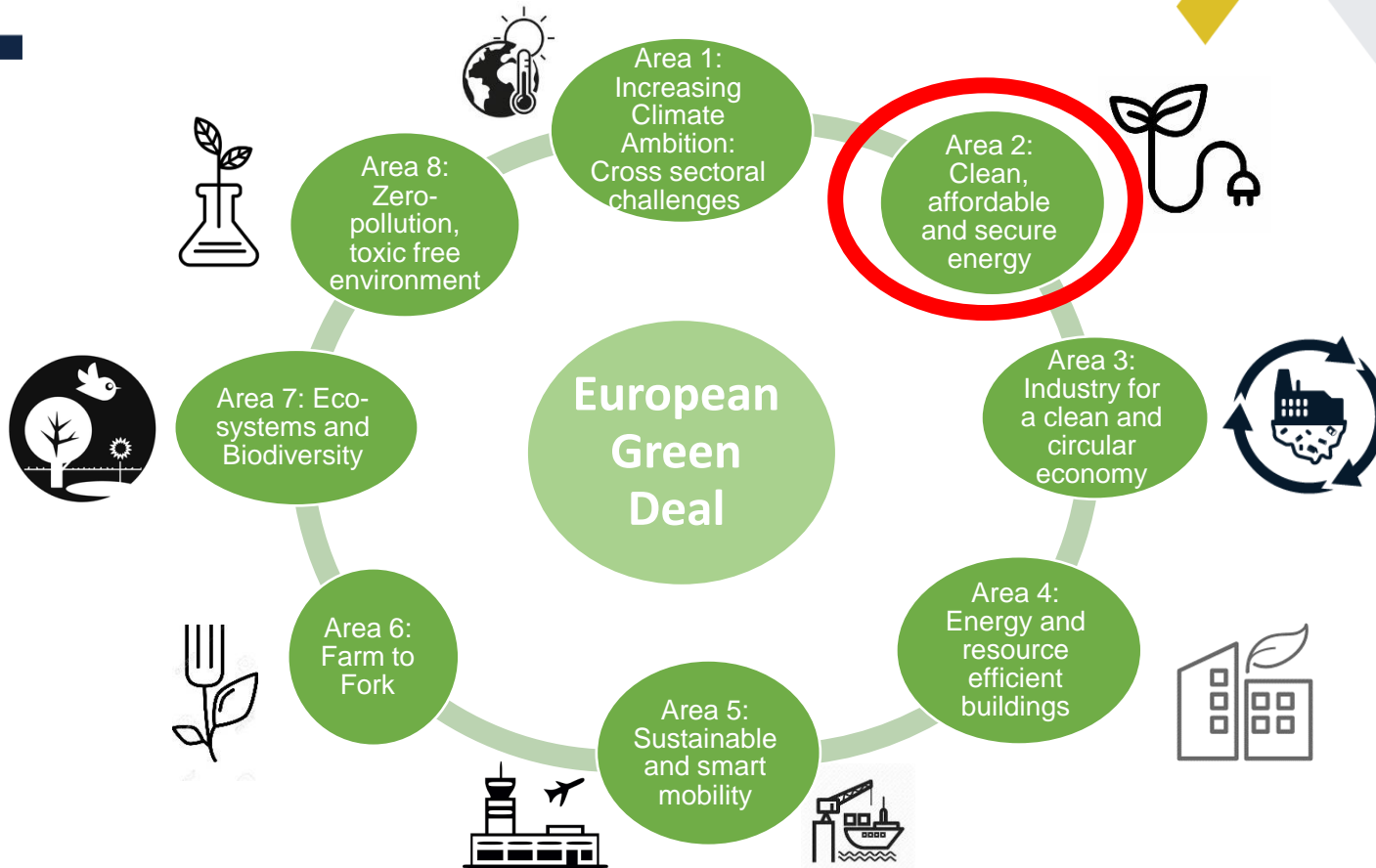


Area 9: Strengthening our knowledge in support of the European Green Deal

Area 10: Empowering citizens for the transition towards a climate neutral, sustainable Europe

Area 11: International cooperation (focus on cooperation with Africa and the Mediterranean)

Green Deal Structure



Area 9: Strengthening our knowledge in support of the European Green Deal

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Disclaimer

The presentation of draft topics and the feedback provided shall **in under no circumstances bind the European Commission** in the final formulation of topics for the call. The binding call text will be published following the formal decision by the European Commission on the [Funding and tender opportunities portal](#)

Area 2: Clean, Affordable and Secure Energy

The production and use of energy accounts for more than 75% of the EU's greenhouse gas emissions; therefore, further decarbonising the energy system is fundamental for reaching the climate targets set for 2030 and 2050. Renewable sources play a central role and their smart integration, using smart grids, power to X (like for instance hydrogen), storage solutions and corresponding networks, energy storage, and sector integration. Decarbonisation needs to take place at the lowest possible cost, while tackling energy poverty is critical for households unable to afford key energy services.



The area comprises the following topics:

- **LC-GD-1-2-2020** *Innovative land-based and offshore renewable energy technologies and their integration into the energy system*
- **LC-GD-2-2-2020** *Develop and demonstrate a 100 MW electrolyser upscaling the link between renewables and commercial/industrial applications*

2.1. Innovative Land-based and Offshore Renewable Energy Technologies and their Integration into the Energy System



Main Points –

Address one of the following subtopics -

1. Development of land-based renewable energy technologies and their integration into the energy Detection & Response

- I. Renewable energy-based DHC and CHP energy sources in the same system.
- II. secure, cost-effective, affordable and robust to renewable energy fluctuations

2. Demonstration of innovative technologies to enable future large scale deployment of offshore renewable energy

2.1. Innovative Land-based and Offshore Renewable Energy Technologies and their Integration into the Energy System

Funding Terms –

- **86** million euro budget (Joint)
- **Subtopic 1- 18 million euro budget**
 - **RIA** – Research Innovation Action (100% funding +25%)
 - Between **3-6** million euro expected for each project
 - -> **TRL 4-5**
- **Subtopic 2- 68 million euro budget**
 - **IA** - Innovation Action (70% funding +25%)
 - Between **20-35** million euro expected for each project
 - -> **TRL 7**

2.1. Innovative Land-based and Offshore Renewable Energy Technologies and their Integration into the Energy System

Why is this needed?

- **Transform Europe** into a fair and prosperous society with a modern, resource-efficient and competitive economy with no net emissions of **greenhouse gases in 2050**.
- **Decarbonise Europe, land-based** and offshore
- **Renewables as the main** energy source, while keeping the stability and resilience of the **European Energy System**.
- Research and Innovation is still needed to be able to achieve a full system transformation
- realize the ambition of other EU **policies****

**like the Clean Planet for all, the SET-Plan, and the New Circular Economy Strategy and to contribute to the Sustainable Development Goals of the United Nations (in particular SDG 7 Affordable and Clean Energy and SDG 9 Industry, Innovation and Infrastructure).

2.1. Innovative Land-based and Offshore Renewable Energy Technologies and their Integration into the Energy System

Subtopic 1 -Scope:

- Develop innovative solutions for either district heating (**DHC**) and/or cooling systems or **CHP**, which allow satisfying a significant or possibly total share of the energy demand
- Combine at least **two** or more renewable energy sources and/or two or more renewable energy technologies.
- Daily/seasonal availability of the renewable energy sources have to be properly taken into account.
- Projects should assess the sustainability of the proposed solutions in environmental, social and economic terms.
- For DHC systems, the integration of sources of otherwise wasted excess heat or cold as well as the interfacing with existing heating or cooling distribution networks can be considered.
- For CHP solutions, the minimum capacity in terms of power supply should be **2,5 MW** and the electrical efficiency is expected to go well beyond the state of the art.

2.1. Innovative Land-based and Offshore Renewable Energy Technologies and their Integration into the Energy System

Expected Impact:

- Projects will bring clear benefits in terms of reducing greenhouse gas emissions, air pollutants emissions and the use of fossil fuels.
- Demonstrate that an affordable, reliable, secure and flexible DHC and/or CHP systems based on onshore, local renewables can be designed to be adaptive and scalable according to the energy demand.

****Must be clear, quantitative, measurable, simple, structured and detailed**

2.1. Innovative Land-based and Offshore Renewable Energy Technologies and their Integration into the Energy System

Subtopic 2 :

Demonstration of innovative technologies to enable future large scale deployment of offshore renewable energy

Demonstrate all potential impacts on the future roll-out of large-scale, sea critical, offshore renewable energy innovations, considering the efficiency, reliability, sustainability and circularity that is needed in all areas of the offshore renewable energy system.

2.1. Innovative Land-based and Offshore Renewable Energy Technologies and their Integration into the Energy System

Why is this needed?

- offshore renewable technologies, as a key energy system for the Clean Energy Transition.
- Estimates for the offshore wind **capacity** in Europe of **240-440 GW by 2050**, compared to about **22 GW today**
- Require a **modern infrastructure** to seamlessly **integrate** the power of offshore resources in the energy system via the **grid to onshore**, or via the option of **power-to-X** taking into account grid constraints, investments and evolving /new energy market design.
- **More efficient, cost-effective, affordable and secure technologies** using **wind, solar, wave and/or tidal resources**, considering the potential of the **different European sea basins** (Baltic Sea, North Sea, Atlantic Ocean, Mediterranean Sea and the Black Sea)

2.1. Innovative Land-based and Offshore Renewable Energy Technologies and their Integration into the Energy System

Subtopic 2 -Scope:

- Offshore renewable energy power generating systems: **innovative integrated offshore (floating) wind, wave, tidal and/or solar systems, on a floating or fixed-bottom substructure**, considering the varied subsea and met-ocean conditions.

And/or

- **Grid infrastructure:** real life demonstration of innovative Direct Current (DC), AC/DC hybrid technologies and systems as a supporting step towards large offshore DC, AC/DC hybrid grids (e.g. multi-vendor Multi-Terminal HVDC (MT HVDC) systems, grid forming converter, HVDC diode rectifiers, Modular Multilevel Converters (MMC), DC Circuit Breaker (DCCB); DC/DC converter and DC/power hub) and their control and management systems

Projects may also include:

- **Power to X /storage** systems to **maximise** the use of offshore **resources** and increase the system resilience.

2.1. Innovative Land-based and Offshore Renewable Energy Technologies and their Integration into the Energy System

Proposals should address also the following:

- Industrial design and **manufacturing processes, circularity**, scalability, installation methods, transport, operation & maintenance, **supply chains** and the related **digital infrastructures**.
- **Regulatory, market and financial challenges**.
- **Marine spatial planning issues, barriers** such as costs, public acceptance and vulnerability to changing **climate conditions** in offshore areas, and considering needs, values and expectations of society through close and continuous discussion with **stakeholders**.
- Present an **environmental monitoring** plan to be **implemented** during the demonstration action.

* In order to ensure a balanced portfolio, at least the highest ranking proposal addressing Offshore renewable energy power generating systems and the highest ranking proposal addressing Grid infrastructure will be funded

2.1. Innovative Land-based and Offshore Renewable Energy Technologies and their Integration into the Energy System

Expected Impact –

- Clearly **demonstrate** all potential impacts on the future **roll-out of large-scale** deployment of offshore renewable energy, the market perspective considering existing or alternative (decentralised) systems and all other **environmental, ecological, social and economic impacts** along **the value chain**.
- The project should demonstrate how it contributes to the Sustainable Development Goals of the United Nations.
- It shall increase incentives for **investment and economies** of scale in offshore bringing down costs and create **new business models** and **services**.

Must be clear, quantitative, measurable, simple, structured and detailed

**The project should demonstrate how it contributes to the different EU policies like the SET-plan, the European Green Deal, Clean Planet for All, and the New Circular Economy Strategy.

2.2. Develop and Demonstrate a 100 MW Electrolyser Upscaling the Link between Renewables and Commercial/Industrial Applications

Operate and install a 100 MW electrolyser to produce renewable hydrogen, as an energy carrier. Mandatory Cross border dimension and knowledge sharing within Europe: **organize 3 workshops**, out of which 2 in European countries, outside of the beneficiary's main implantation, involving policy makers and energy stakeholders

2.2. Develop and Demonstrate a 100 MW Electrolyser Upscaling the Link between Renewables and Commercial/Industrial Applications

Funding Terms –

- IA – Innovation Action (70% funding +25%)
- 50-60 million euro budget
- Up to 20 million euro expected for each project
- 3 projects expected to be funded
- The project should have a duration of 5 years, with at least 2 years of operation.
- -> TRL 6-7

2.2. Develop and Demonstrate a 100 MW Electrolyser Upscaling the Link between Renewables and Commercial/Industrial Applications

Why is this needed?

- Potential **key role of hydrogen** in decarbonising **hard-to-abate sectors**, such as industry, **cement, steel**, and also contributing to decarbonisation of heavy duty and **long distance transport**
- To help achieve the climate neutrality objective, **hydrogen needs to be produced at large scale**, mainly through electrolysis **powered by renewable electricity**.
- Scenarios achieving climate neutrality envisage an installed electrolyser capacity ranging between **400 and 511 GW by 2050** in the EU. However today the technology is only available at **multi-MW scale**
- In order **to reach the GW scale**, an important milestone would be the development and demonstration of a **100MW electrolyser**.

**like

2.2. Develop and Demonstrate a 100 MW Electrolyser Upscaling the Link between Renewables and Commercial/Industrial Applications

Scope:

- Development, installation and operation a 100 MW electrolyser for managing and **using efficiently renewable energy, water, Hydrogen and Oxygen flows**
- Demonstrate the increased usage and economic impact of RES mix, addressing potential curtailment issues in Demand Response operation
- Operation of an electrolyser system in real life conditions in an industrial or port environment, for example feeding a **mobility hub, a fertiliser production plant, a synthetic fuel production plant, a refinery, biorefinery or other industries**
- Investigate possibility to **make use of rejected heat or vented Oxygen**
- Operating pressure should be suitable for the application & any buffering / **compression requirements.**

2.2. Develop and Demonstrate a 100 MW Electrolyser Upscaling the Link between Renewables and Commercial/Industrial Applications

Other activities will consist of economic, safety and environmental assessments:

- **Demonstration** of the **future economic viability** of the technology depending on cost of electricity and hours of operation of the electrolyser.
- **Generation** on the **cost-effectiveness** of large electrolysers should be taken into account
- **Reduce** footprint and address potential **health** and **safety issues**
- Evaluation of the **environmental performance** of the system
- Evaluation of other **ecological** and **societal benefits** along the **value chain**

2.2. Develop and Demonstrate a 100 MW Electrolyser Upscaling the Link between Renewables and Commercial/Industrial Applications

Mandatory knowledge sharing activity:

- Organise 3 workshops, out of which at least 2 in European countries, outside of the beneficiary's main implantation, involving policy makers and energy stakeholders, to share knowledge on experience gathered and replication of experiences.
- Contribute to addressing common challenges, information and dissemination activities
- The knowledge to be shared will cover the whole project cycle including project management, procurement, permitting, construction, commissioning, performance, cost level and cost per unit performance, environmental impacts, health and safety, as well as needs for further research and development.

2.2. Develop and Demonstrate a 100 MW Electrolyser Upscaling the Link between Renewables and Commercial/Industrial Applications

Technological impacts – Detailed in the call

- **Demonstrate** a compelling **economic** and environmental case, including boundary conditions, for key applications such as **transport, energy storage, raw material** (hydrogen and oxygen) or heat and power production.
- For a LCOE of up to EUR 40/MWh (renewable sources), **achieve a cost of green H2 below EUR 2.5/kg** and possibly aim for further reductions by generating income from the provision of services to the electricity grid
- **Recommendations** for **policy makers** and **regulators**.

****Must be clear, quantitative, measurable, simple, structured and detailed**



Funding and Tenders

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home>

CORDIS - Find me a project

<https://cordis.europa.eu/projects/en>

Finding Partners

1. Use your network
2. Register for our Partner Search online form
3. Use the National Contact Point (US!!)
4. Identify the European leading groups in the field: Search [previously funded projects](#) (CORDIS)
5. Funding and Tenders portal [Partner Search](#) (after official publication)
6. Bi-national and International workshops



ISERD Aid Fund



➤ **Route 37a** – Provides support to entities from the industry to participate in H2020 topics.

Eligible reimbursements of 75% of up to 40,000 NIS for –
Travel to a PS event, hosting potential partners in Israel, and
the cost of a consultant to help write the proposal

Support depends on budget availability!!

ISERD Aid Fund

Red Team

“A red team is an independent group that challenges an organization to improve its effectiveness by assuming an adversarial role or point of view.”

- Wikipedia

The Red Team service is a national full proposal check -

- It is free of charge
- It uses expert reviewers of the Innovation Authority (some are also H2020 reviewers)
- All reviewers have signed NDA with the Innovation Authority
- The identity of the reviewer is classified
- The full proposal must be submitted **at least a month in advance** of the topic deadline by 10:00
- For EIC Accelerator and FTI –
 - Not eligible if this is a first time submission
 - Limited to twice for each company

Our Team

- **Area 1:** Increasing Climate Ambition: Talia Passiar – talia@iserd.org.il
- **Area 2:** Clean, affordable and secure energy; **Area 3:** Industry for a clean and circular economy (topic 2); **Area 7:** Ecosystems and Biodiversity: Sarit Kimchi - Sarit.Kimchi@iserd.org.il
- **Area 6:** Farm to Fork; **Area 8:** Zero-pollution, toxic free environment: Nir Shaked - Nir.s@iserd.org.il
- **Area 3:** Industry for a clean and circular economy (topic 1); **Area 4:** Energy and resource efficient buildings; **Area 5:** Sustainable and smart mobility; **Area 11:** International cooperation: Rachel Loutaty - rachel.l@iserd.org.il
- **Area 9:** Strengthening our knowledge in support of the EGD (topics 2 & 3): Tzlil Ribak - Tzlil.ribak@iserd.org.il
- **Area 9:** Strengthening our knowledge in support of the EGD (topic 1): Hagit Schwimmer - Hagit.Schwimmer@iserd.org.il
- **Area 10:** Empowering citizens for the transition towards a climate neutral, sustainable Europe: Smadar Hirsh - smadar@iserd.org.il

Green Deal general contact persons -

Hagit Schwimmer Hagit.Schwimmer@iserd.org.il & Nir Shaked Nir.s@iserd.org.il

Additional Green Deal Material

- ISERD Leaflet – discover the different topics and find the contact point for each
- Green Deal [website](#)
- Green Deal [call](#)
- Green Deal Work Programme





THANK YOU

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Israel Innovation
Authority


Ministry of Science
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