

**INTERNATIONAL RENEWABLE ENERGY AGENCY**

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**Work Programme and Budget for 2018-2019**  
**Report of the Director-General**

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## Introduction

1. The global energy system is entering a period of transformation of unprecedented change. The imperative of creating a sustainable, affordable, secure and inclusive energy system to underpin global growth has taken on a pronounced urgency and immediacy. Once characterised by slow and steady adjustments, the energy sector is changing at unparalleled speed, breadth and reach. The transformation is reshaping economies and societies, creating new linkages between sectors and redefining the relationships between energy producers, consumers, networks and markets. With seven years of creating a global knowledge and action framework for renewable energy behind it, the International Renewable Energy Agency (IRENA) today has the opportunity to support its Members to transition effectively to a new energy reality.

2. With rapidly evolving technology, emerging business models and shifting regulatory landscapes, the deployment of renewables has a far-reaching impact. The business case is strong and continuously improving, offering an economically attractive answer to climate and energy security concerns, sustainable growth and employment. It is creating new opportunities to forge sustainable livelihoods, especially for hundreds of millions who lack energy access today. Renewable power has reached 2,000 gigawatts (GW) globally<sup>1</sup>, with most growth coming from new installations of wind and solar energy. Renewables have accounted for more than half of capacity additions in the global power sector since 2011, with their share in total power generation increasing steadily.

3. Although the momentum is accelerating, a decisive shift in the total energy mix is still at an early stage. A dramatic growth is evident in the power sector, but renewable energy is yet to make a meaningful impact on end-use sectors like direct heat, building applications and transport. The increasing electrification of infrastructure and digitalisation of energy systems present a significant opportunity in this regard. The next wave of cost reductions in system design and construction, along with further technological breakthroughs, could enable another step-change in the competitiveness of renewable power generation. A prime example is the cost of electricity storage systems, expected to fall as much as 60% by 2030<sup>2</sup>. These trends suggest accelerated deployment and a permanent shift in the energy mix of the future. Renewables offer an attractive solution that addresses multiple national policy objectives, as well as the common global priorities defined in the major frameworks for international cooperation. Most significantly, there is an opportunity to leapfrog to a new age of clean energy.

4. The adoption of the Agenda 2030 for Sustainable Development (2030 Agenda) and the Sustainable Development Goals (SDGs) signaled a renewed emphasis on the need for affordable, clean energy. The Paris Agreement has reinforced climate change action, aligning countries towards a shared objective to limit global warming by reducing their greenhouse gas emissions. The plans submitted by countries – the Nationally Determined Contributions (NDCs) – set targets for emissions reduction by 2030, with most including renewables as part of their strategy. As countries consider their NDCs in 2018, this is a timely opportunity to further highlight renewable energy potentials.

5. The envisaged transformation is technologically possible, economically viable and socially desirable, as IRENA's analyses have shown. Most importantly, it has already begun. Meeting global development and climate objectives, however, requires the growth rate for renewables to accelerate seven-fold, to reach 60% of the world's total final energy consumption by 2050. It also necessitates reducing energy intensity twice as fast, at around 2.5% per year by 2030, and maintaining that rate until 2050. Around half of these improvements would stem directly from the switch to renewable energy in heating, cooling and transport, as well as electrification based on cost-effective renewable power.

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<sup>1</sup> *Renewable Capacity Statistics 2017* (IRENA, 2017)

<sup>2</sup> *Electricity storage and renewables: Costs and markets to 2030* (IRENA, 2017)

6. But energy is only a means to many different ends. The renewables-based transition can fuel economic growth and create new employment opportunities. IRENA estimates that the cumulative gain through increased global gross domestic product (GDP) from now to 2050 would amount to USD 19 trillion and would spur job creation throughout the global economy. Importantly, improvements in human welfare, including economic, social and environmental aspects, will generate benefits far beyond those captured by GDP. Indeed, economic growth and development, if centred on renewables, can be achieved in an environmentally sustainable way while providing energy access and energy security for all.

7. Since IRENA's establishment in 2011, the global energy landscape has changed in rapid and unexpected ways. The penetration of renewables is redefining the existing models. The energy system is shifting from an era of concentrated power and ownership to one of decentralisation and diversity, with an unpredictable interplay of a far greater variety of participants. This ongoing transformation is charting a path for the economy of the future, underpinned by a new, sustainable energy system.

8. IRENA provides a unique setting for international cooperation, with 152 Members and 28 States in the process of accession. With countries worldwide on the cusp of profound changes in their energy systems, it offers a paradigm for positive transformation in the face of economic, environmental and social challenges. The Agency's forward-looking, global mandate fosters collaboration that is both innovative and inclusive. The combination of expertise, experience and diversity within IRENA membership promises to unlock vast new possibilities, all the while changing the contours of the existing energy system. That is why, in the Medium-term Strategy 2018-2022 (MTS), Members defined a new direction for the Agency to play a leading role in the transformation of the global energy system.

### **Strategic direction**

9. IRENA today is an internationally recognised organisation, synonymous with excellence in providing renewable energy knowledge and advice, backed up with strong worldwide convening power and demonstrated impact on decision making. The 2018-2019 programmatic cycle will further cement the Agency's place as an effective international instrument in the global energy and institutional landscape. The Work Programme, therefore, builds on these comparative advantages and responds to the needs of the Agency's diverse global membership.

10. There are some key prerequisites for securing IRENA's continued success. Relevance and usefulness are the key drivers of IRENA's programmatic output. The Agency occupies a privileged space, in the sense that it enjoys access to the wealth of knowledge and information of all its Members. It is thus perfectly positioned to monitor trends, recognise needs, anticipate changes and provide cutting-edge perspectives and advice. The Work Programme seeks to benefit from these advantages, while keeping IRENA agile to adapt to the fast-changing environment.

11. Technical excellence is key to maintaining and increasing the Agency's standing and credibility, and to ensure that IRENA provides timely, objective and policy-relevant advice to Members. To achieve this, programmatic activities have been streamlined to focus on the most relevant topics, particularly where IRENA has a clear comparative advantage or can build upon already established areas of excellence.

12. Realising the energy transformation requires unprecedented effort and heightened levels of cooperation and investment by governments, traditional stakeholders or new actors. Inclusiveness and partnerships, therefore, remain the trademarks of IRENA's work. Leveraging the strengths of committed partners while bringing on board additional constituencies, in particular the private sector, will be an integral part of all IRENA activities. Given limited resources and high demand, collaboration with other international and regional organisations needs to be optimised to avoid duplication of effort and benefit from respective competencies.

13. Consistent with the direction of the MTS, IRENA will lead the global renewable energy effort as a centre of excellence for energy transformation, an authoritative voice and a catalyst for partnerships and concerted action. The rapidly changing environment in which the Agency operates requires careful prioritisation of programmatic activities, focusing on areas where IRENA's contribution can make the most impact. The proposed Work Programme and Budget is thus underpinned by three guiding principles;

14. **The first** principle is the continued emphasis on the business case for renewable energy. More than in previous years, there is a broad consensus on the value of renewable energy and high commitment to innovation. Private finance is increasingly comfortable with investing in what was once seen as a high-risk area. But investment decisions on renewables appear increasingly nuanced and significant barriers remain. IRENA will continue to identify, quantify and analyse the evidence to highlight deployment opportunities and positive externalities. This will be vital to achieving deployment at the speed and scale outlined in the global vision on sustainable development and climate change.

15. **The second** principle is to make maximum use of IRENA's convening power, to encourage cross-pollination of knowledge and expertise by and for the benefit of its membership. With the renewable energy field becoming more and more crowded, the comparative advantage IRENA has is its broad membership base, concentrated intellectual capacity and expertise, and focused and concrete mandate. Through strong and direct engagement with Members and regular interaction with the private sector and other stakeholders, IRENA can contribute, and have access to a diverse pool of knowledge and experience. Convening stakeholders and inclusive approaches in the implementation of programmatic activities will ensure that the Agency remains on the cutting edge of energy transformation.

16. **The third** principle is to focus on further strengthening IRENA's effectiveness and impact through strategic partnerships. The changing renewable energy landscape means that demand for IRENA's services will be on the rise. To secure long-term impact from its work, IRENA will seek synergies and formulate strategic partnerships with its Members, development partners and stakeholders in the energy sector, aiming to heighten the effectiveness and sustainability of its work and to facilitate the convergence of effort. Special emphasis will be placed on forming partnerships to promote IRENA's knowledge products as a means to realise change on the ground. Global and regional initiatives and processes, such as the Berlin Energy Transition dialogue (BETD), Clean Energy Ministerial (CEM), G7 and G20, Suzhou International Forum on Energy Transition, and the World Future Energy Summit (WFES) among others, will remain prime platforms for the Agency to contribute to the energy transformation discourse. Regional high-level meetings in Africa, the Arab Region, Asia, and Latin America, as well as in Small Island Developing States (SIDS) will remain key fora for engagement.

17. In the past two programmatic cycles, IRENA has implemented its work through six thematic areas, but capturing the diversity of topics and contexts within those thematic areas has become increasingly complex. While those issues still carry great importance, the programmatic approach must evolve to reflect the Agency's redefined strategic direction. The Work Programme for the next cycle reflects Members' request for greater alignment with the strategy for the upcoming five-year period. It also puts in place the foundations to monitor and evaluate progress over successive programmatic cycles.

The 2018-2019 Work Programme and Budget is framed under four pillars of the MTS:

- Centre of excellence for energy transformation;
- Global voice of renewables;
- Network hub; and
- Source of advice and support.

18. Developing activities through the prism of MTS pillars has sharpened and rebalanced programmatic components, ensuring they will better address the priorities identified through the consultative process with Members, as well as the experience gained in the implementation of IRENA's work since 2011. The proposed activities, moreover, reflect evolving energy trends and drivers of change, while considering diverse needs and requirements of Members.

19. Members emphasised that their ambition for the Agency cannot be met through core resources only, and that future growth will have to come from a diversified resource base. Recognising the need for predictability for both the Agency and its Members, the Work Programme includes an indication of additional needs to orientate future contributions and retain the overall coherence of the Work Programme. The areas where additional resources would be required are contained in a dedicated segment, aligned with the MTS structure to ensure consistency and a longer-term outlook.

20. The core budget, amounting to USD 42.9 million for the biennium, takes into account assessed contributions from new Members. Core non-assessed contributions comprise USD 10.2 million from Germany for the IRENA Innovation and Technology Centre and USD 9.12 million from the United Arab Emirates<sup>3</sup> (USD 5 million for IRENA's operations, USD 0.92 for information technology infrastructure and USD 3.2 million for governing body meetings) and USD 1.7 million from other Members. The proposed Work Programme also outlines additional resource requirements estimated at USD 25 million for this programmatic cycle to advance the objectives of the MTS.

21. In this context, it should be noted that contribution pledges have already been received from Norway for NOK 39 million (core support for the implementation of the WP and MTS) and EUR 1 million from the Walloon region of Belgium (decentralised solutions and NDCs). In discussions on resource diversification, Members also supported the introduction of a "Renewables Acceleration Fund" for additional contributions toward the implementation of the MTS. The Secretariat will elaborate the features of such a Fund and continue to discuss with interested Members to secure additional pledges from the outset of the biennium.

22. Members stressed the importance of implementing the Agency's resource diversification strategy. In this regard, there was strong support for the introduction of a "Renewables Acceleration Fund" for additional contributions toward the implementation of the MTS. The Secretariat will elaborate the features of such a Fund and discuss with interested Members to secure pledges from the outset of the biennium. The proposed Work Programme outlines additional resource requirements estimated at USD 25 million for this programmatic cycle to advance the objectives of the MTS.

23. Effectiveness and impact are key underpinnings of all IRENA programmatic activities. To date, efforts have been made to capture and report some of the impacts of programmatic activities, mainly by illustrating some of the work in progress through strategic communications and in annual reports. The new structure was developed to clarify the focus and direction of IRENA's overall work, stimulating continual improvements in effectiveness and efficiency, as well as allowing for systematic measurement of progress, and evaluation of impact. The alignment between the MTS and programmatic cycles also provides for a longer-term outlook in the Agency's work, along with structured and systematic monitoring and assessment of progress.

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<sup>3</sup> The United Arab Emirates also provides housing allowance averaging USD 2.2 million biennially.

## I. Centre of Excellence for Energy Transformation

*Objective: Empower effective policy and decision-making by providing authoritative knowledge and analysis on renewables-based energy transformation at global, national and sectoral levels.*

24. Technological developments and breakthroughs, demographic and social change, shifts in global economic relations, rapid urbanisation and environmental concerns are having an immense impact on the energy sector. As a result, the ongoing transformation of the energy system remains at the forefront of the global agenda. It is driven by a diversity of objectives, including development, sustainable growth, climate change, energy security, energy poverty and local pollution considerations. This diversity of objectives has given rise to a diversity of approaches and views on how the energy transformation should occur.

25. A unifying constant is the recognition that renewable energy, coupled with energy efficiency, is an available and necessary means to overcome many of the most pressing energy challenges of the 21<sup>st</sup> century. The convergent effects of technological advances, policy measures, the growth of distributed generation, and new forms of competition are having a transformative impact on energy markets and business models. Investors are increasingly eager to engage in the opportunities that unfold, and markets are witnessing novel ways of attracting finance to satisfy this interest. Innovation is at the heart of these shifts, which herald the prospect of a very different energy system for the future.

26. The change to date has been most visible in the power sector. With the increase in the share of renewable energy, areas that have been regarded as marginal to the sector are now shaping the emerging power system. Smart grids, micro-grids, electric vehicles, local generation and local storage all create opportunities to engage new stakeholders in new ways. Cities, with their central role in defining end-use sector developments, are emerging as a major player, while digital and data management companies are looking at automation, energy saving, data aggregation and management opportunities.

27. The transformation of the global energy system is a multifaceted and far-reaching process, in which actions taken today will have an impact on economies and societies for decades to come. Understanding the role of renewable energy in this process is of utmost importance, particularly as multiple stakeholders navigate the shift from a centralised system to one that is much more interactive, but also decentralised and distributed.

28. IRENA, building on its work to date, will continue to provide critical analysis and advice on the pathways to create a renewables-based global energy system. Over the coming two years, it will analyse the transformation of existing, centralised energy systems in mature and emerging markets as well as the enablers and solutions emerging from efforts to secure universal energy access. In keeping with global trends, IRENA will expand its innovation work, both to strengthen analytical studies on technologies, markets, policy and finance, and to provide a collaborative platform for stakeholders. Special attention will be paid to capturing knowledge, lessons and best practices to help accelerate the common learning curve.

### **Transformation pathways**

29. A secure, sustainable and affordable renewables-based energy future is a compelling vision. The transformation of the global energy system is an undertaking of immense proportions that will ripple throughout economies and societies. Over the past five years, IRENA's renewable energy roadmap – REmap – has provided a range of insights on possible paths for such a transformation, spanning multiple geographic areas, sectors and topics. Through an extensive network of country experts, the programme consolidates national energy and climate outlooks and detailed technology information in a single, comprehensive body of knowledge. With 70 participating countries covering

around 90% of global energy use, REmap informs global and regional energy outlooks, roadmaps, and energy investment master plans. It allows the Agency and its Members to stay abreast of the latest developments, as well as to gain access to the wealth of information and best practices from the participating countries.

30. To date, REmap work has focused mostly on the medium-term timeline of 2030, aligned with the internationally endorsed the 2030 Agenda and the associated development goals. In the next programmatic cycle, the analysis will increasingly include the longer-term perspective to 2050. The combination of mid-term and long-term outlooks, coupled with macroeconomic and investment insights, will provide more nuanced and far-sighted input to decision-making. To support this increasingly complex analysis, IRENA will develop the Energy Transition Model for internal use, which will consolidate and enhance existing tools to gradually making them available to IRENA Members.

31. An important aspect of REmap work remains the assessment of progress and the identification of priority actions to accelerate the world's energy transition. In this context, bioenergy accounts for three eighths of the cost-effective and practical renewable energy potential to 2050. IRENA's work on bioenergy has so far focused mainly on identification of resource potential and cost-effective technology pathways. In the next biennium, the focus will be on identification of sustainable scale-up strategies for realising the potential, based on dialogue and outreach.

32. To date, the power sector has been among the most rapidly changing areas of energy use. Only a decade ago, the share of power generated from variable renewable energy (VRE) sources, meaning wind and solar photovoltaics (PV) in particular, was negligible. Since 2011, renewables account for over half of new capacity additions, while 2016 alone saw the addition of 71 GW of solar PV and some 50 GW of wind power capacity.

33. IRENA has produced a range of knowledge products, analytical tools and methodologies to support power sector planning and grid integration. Going forward, and considering the speed of change worldwide, greater emphasis will be placed on the mapping of existing knowledge, to heighten the benefits available from the extensive experience existing within IRENA's global membership.

34. Consolidating existing knowledge and best practice will also help to reveal gaps, suggesting where the Agency could be best placed to provide additional analyses, methodologies and tools. These will be applied on the ground through technical assistance and regional initiatives in support of Member priorities and efforts. Part of this work will specifically address urban settings, which will play a defining role in the intersection between power and end-use sectors.

35. This intersection of power and end-use sectors such as transport and heating/cooling calls for holistic policies and measures that consider crucial linkages, not only between different aspects of energy use, but also with energy efficiency. Building on the 2017 report *Adapting Market Design to High Shares of Variable Renewable Energy*, IRENA will carry out an in-depth analysis of policies, regulations and market instruments to support specific flexibility options, such as advanced power plant flexibility, demand-side management, storage and inter-regional connectivity, and interaction with energy efficiency. The analysis will also consider the emerging role of new players, including aggregators, in future electricity markets.



**Output:** Countries provided with the tools and information necessary to support accelerated deployment of renewable energy.

Deliverables		
Knowledge Creation	Tools and Methodologies	Engagement and Outreach
<ul style="list-style-type: none"> <li>• REmap Global report</li> <li>• Grid integration planning guide for medium size power systems</li> <li>• Global report on policy and market design for integration of VRE</li> <li>• Report on long-term planning with high share of VRE</li> <li>• Analytical briefs (demand-side flexibility; 100% renewables power system operation; system integration costs)</li> </ul>	<ul style="list-style-type: none"> <li>• Development of Energy Transition Model (integrating REmap, planning, flexibility and grid assessment models)</li> </ul>	<ul style="list-style-type: none"> <li>• Technical workshops on best practices for long-term planning and grid assessment</li> <li>• REmap expert network</li> </ul>

### Access solutions

36. For hundreds of millions of people who do not currently have access to electricity, the old assumption that they will have to wait for grid extensions is being redefined by new possibilities. Advances in technology and market solutions are opening options beyond the grid. Mobile payment infrastructure, customer-driven affordable payment systems and new-entrant business models are all playing a part in facilitating bottom-up energy access, which is outpacing the traditional top-down planning of national grid extensions. The private sector is increasingly engaged, driving business and financing models and technology innovation to bring down costs and make off-grid solutions more accessible to rural communities. IRENA's Renewable Energy Capacity Statistics show that, globally, as many as 60 million households, or 300 million people, are served with and benefit from off-grid renewable electricity.

37. But even as the modern energy sector continues to grow, nearly a quarter of the world's population remains outside its fold, putting the achievement of many SDGs at risk. Accelerating the pace of access expansion requires both on- and off-grid solutions. It also requires an enabling environment for renewable energy deployment, which hinges on dedicated policy and regulations, customised business and financing models, adapted technology solutions, and capacity building. Other considerations, such as gender, local community engagement and productive end-use support, are also key to ensure the sustainability of projects and initiatives, as well as to maximise benefits. Importantly, continued dialogue and partnerships within the energy sector and across other sectors, such as agriculture, water and health, will be crucial to improve coordination and integrate different perspectives in policy and programme design.

38. To date, IRENA has contributed to the access agenda with a range of knowledge and data products. The International Off-grid Renewable Energy Conference (IOREC), a collaborative platform provided by the Agency every second year since 2012, has become a landmark gathering of rural electrification stakeholders. Going forward, IRENA will streamline its access-related work to provide targeted input in key areas, including those identified through IOREC discussions. The foundation of this work will be a comprehensive review of the contribution of renewables to energy access, highlighting trends both by technology and by different energy uses, along with recent developments in policies, business models and financing. Building on earlier work on policies, IRENA will analyse the design elements required for off-grid renewable energy policy and regulatory frameworks, including the integration of off-grid renewables in national rural electrification strategies. This work will be complemented by the analysis of socio-economic impact, aimed at drawing lessons and identifying the best practices to support the productive use of energy and maximise the benefits of energy access. An additional emphasis will be placed on modern renewable options to replace traditional biomass, which today accounts for 9% of global final energy consumption.

<b>Output:</b> Countries informed of technology, policy and finance solutions for improved energy access.		
<b>Deliverables</b>		
<b>Knowledge Creation</b>	<b>Tools and Methodologies</b>	<b>Engagement and Outreach</b>
<ul style="list-style-type: none"> <li>• Report on renewable energy contribution to access</li> <li>• Policy briefs on enabling frameworks for off-grid renewables</li> </ul>		<ul style="list-style-type: none"> <li>• Convening of stakeholders through IOREC</li> </ul>

**Accelerating innovation**

39. Innovation plays a definitive role in the collective ability to change the existing energy system. Technology advancements, underpinned by enabling frameworks, have created a range of flexibility options that have allowed penetration of VRE at levels unimaginable only a few years ago. This progress is especially evident in the power sector, which is advancing faster than many predicted and is poised for further acceleration. The potential for energy system integration, with transport, buildings and industry actively incorporated into the definition and operation of the energy system, is vast. Such integration can unleash even more of the potential associated with the synergies between power generation and demand management. Achieving a renewables-based energy system that meets global economic and climate objectives, however, requires rapid innovation that spans many sectors and many facets of the economy.

40. IRENA’s global membership and forward-looking mandate make it uniquely positioned to monitor and analyse these developments, anticipate further change, and convene diverse stakeholders to accelerate progress. In its work to date, IRENA has addressed various aspects of innovation, considered regional strategies and engaged with partners and initiatives. In addition, IRENA has gathered a solid and rigorous knowledge base on policies and regulations that help provide state-of-the-art analysis of

enabling policy frameworks, spanning the entire renewable energy development cycle. This includes best practice and trends in policy design, evaluation of support mechanisms and their adaptation to changing market conditions as well as regulations to support the integration of variable renewables. The resulting experience confirms that IRENA can add a significant contribution, specifically by maintaining a holistic approach to innovation that considers technology, policy, regulatory and finance dimensions, along the complete technology lifecycle and across different sectors.

41. Going forward, IRENA's innovation work will be consolidated in two streams: first, state-of-the-art analytical work; and second, intensified pursuit of partnerships and convening of stakeholders that are active in the field of innovation. An essential basis for the analytical work will be the continuous updating of knowledge and information on technological developments. Innovation outlooks for selected sectors and technologies will specifically target those areas where viable solutions are yet to emerge. These will be accompanied by the analysis of innovative policy instruments to support renewable energy deployment in diverse market conditions. In this context, IRENA will expand its analysis of best practice and lessons in policy design, as was done successfully for renewable energy auctions. Considering the significant investment needed to realise the envisaged energy transformation, IRENA will also continue to analyse the trends in renewable energy finance, aiming to provide insights on successful, new financing instruments and innovative business models and gaps in the investment landscape that still need to be addressed. This analysis will support the design of dedicated risk-mitigation facilities as well as fill knowledge gaps on the issues that are shaping the evolving finance landscape. Particular focus will be placed on the engagement of institutional investors in the renewable energy sector.

42. Engagement of stakeholders is of high relevance for all aspects of IRENA's work, and this is perhaps best exemplified in the field of innovation. As an authoritative global organisation, IRENA provides a neutral space for interaction and dialogue, including strengthened interaction with the private sector and scientific community. To this end, IRENA's Innovation Week will be a key venue. The Agency will also work closely with other international organisations and initiatives in the field of innovation, such as Mission Innovation and CEM to promote synergies between different dimensions of innovation. Policy, finance and technology aspects are equally important to catalyse the development and deployment of renewables and accelerate energy transformation.

<b>Output:</b> Countries are aware of the latest innovations in technology, policies and finance.		
Deliverables		
Knowledge Creation	Tools and Methodologies	Engagement and Outreach
<ul style="list-style-type: none"> <li>• Innovation Landscape report</li> <li>• Technology status and outlooks</li> <li>• Global report on innovative policy design and practice</li> <li>• Analytical briefs on innovative capital market instruments and investment trends</li> </ul>	<ul style="list-style-type: none"> <li>• Design of risk mitigation facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Innovation week</li> <li>• Engagement with innovation-related fora (CEM, MI)</li> </ul>

## Knowledge hub

43. Providing timely, accurate and accessible knowledge is an important factor in the ongoing change. As global energy systems make the transition to sustainability, objective and authoritative information, data and analyses will remain a foundation of good decision-making. They are also paramount to maintaining the confidence of all stakeholders that renewable energy is an effective, affordable and reliable option, whether from a technical, socio-economic or financial perspective. Effective knowledge management is therefore critical for IRENA, particularly to provide a central repository of information on renewables and to share the latest knowledge. In the next biennium, IRENA aims to confirm its position as the centre of excellence for global renewable energy information with an integrated approach to data and information management, aided by its revamped search engine, REsource.

44. There is a growing demand to capture and present the experiences and lessons from countries engaged in the energy transition. IRENA will consolidate such information from different streams of its programmatic work and provide a platform for countries to share their experiences. To serve as a global repository of best practice, IRENA will continue to collect and comprehensively compile the latest information found in its own finding, as well as that of reputable partners. Information would be presented at IRENA's website with state of the art search functionality. This will include the further development, updating and maintenance of the IEA/IRENA Policies and Measures Database. Information in the database will be standardised to improve its accessibility and facilitate analytical work. IRENA will also provide state-of-the-art analysis of global trends in the adoption of key policies, including an update on the renewable energy targets set by countries.

45. The flagship publication, *REthinking Energy*, building on all aspects of IRENA's work, will continue to provide a timely, forward-looking analysis of the global energy transformation. This includes highlighting the most important developments related to policies, finance, markets and technologies, as well as insights into crucial issues in the ongoing changes.

<b>Output:</b> Information about renewable energy, including best practice, is presented in a timely and user-friendly way.		
Deliverables		
Knowledge Creation	Tools and Methodologies	Engagement and Outreach
<ul style="list-style-type: none"> <li>• REthinking energy</li> <li>• Report on renewable energy targets and policies</li> </ul>	<ul style="list-style-type: none"> <li>• IEA/IRENA policy database</li> <li>• REsource search engine maintenance and development</li> </ul>	

## II. Global Voice of Renewables

*Objective: Shape the global discourse on energy transformation by providing relevant timely, high-quality information and access to data on renewable energy.*

46. Developments during the past few years have exceeded the expectations of even the most optimistic supporters of renewable energy. The remarkable progress achieved during this period has altered the perception of renewables as a niche technology option in the energy mix to one in which renewables will play a major role in the future of energy. The business case for renewables is strong and continues improving with falling costs, advances in technology and evolving markets. Renewables are now synonymous with an immediate, as well as future-oriented, solution for the growing global demand for energy.

47. The transformational trend triggered by the ongoing energy transition with renewables at the core is already reshaping societies and economies. But changing the energy system is complex, involving wide-ranging implications and capital-intensive investments in future energy infrastructure. Amid change of this magnitude, the world needs an authoritative voice for renewable energy, to provide timely, compelling and credible information. In the course of the last five-year period, IRENA's mission was to become such a voice. Today, the ongoing transformation of the energy system requires this voice to become even stronger – to be heard among competing agendas and in the face of resistance to change.

48. Rigorous empirical and analytical work, underpinned by the strong support of Members, has enabled IRENA to be the voice of renewables at the global, regional and local levels, among diverse audiences. The Agency's work has influenced the debate in such settings as the UN, G7 and G20, while its data and analyses have gained global recognition and widespread use. Importantly, IRENA has been prominent in promoting the role of renewables as a key contributor to climate efforts. This role is becoming increasingly pertinent as countries consider their strategies on respective NDCs as the 2020 milestone approaches.

49. Decreasing costs and recognition of the benefits offered by renewable energy are the key drivers of the on-going transformation. IRENA's costs work demonstrates that renewable energy technologies are an economically competitive solution in a growing range of settings. The economic rationale is significantly strengthened by the additional benefits renewable energy brings for socio-economic development, as measured by IRENA's work on economic growth, welfare and jobs. Considering these dimensions is central to ensure a just, timely and economically efficient energy transition, as policy-makers seek to maximise impact and achieve multiple objectives.

50. Drawing on the richness of its global membership, IRENA is uniquely placed to provide a strong voice for renewable energy at this critical juncture. The foundation of this role will be sound empirical evidence and rigorous analyses on topical issues, communicated in an accessible and timely manner and widely distributed. IRENA's pioneering work on the benefits of renewables will continue to shed light on the socio-economic and environmental impact of deployment. This information could play a decisive role in decisions on future investments and pathways.

### **Realising socio-economic benefits**

51. The socio-economic benefits of renewable energy are gaining prominence as a key consideration among decision-makers. They are increasingly concerned with the economy-wide impacts of the energy transition pathways in terms of employment, incomes, welfare and local industry development. This is a crucial step towards ensuring a just, timely and economically efficient transition. IRENA's work on measuring renewable energy benefits has played a key role in providing quantitative evidence of the positive impacts of this transition, particularly regarding economic growth, welfare and jobs. To

better understand the potential benefits of the renewables-based energy future, IRENA will continue to analyse and forecast socio-economic impact by undertaking quantitative and qualitative assessments. Through the collection of country and project-level data, as well as own estimates, IRENA will provide annual reviews on jobs in the sector, with continuous refinements of the analysis to add new perspectives, such as on gender and access. To strengthen the link to SDGs, IRENA will continue to analyse the socio-economic impact of renewable energy projects on communities, through primary data, providing best-practice examples with a special focus on gender and skills development. It will also analyse ways to leverage local capacities along the value chain for selected technologies.

52. While socio-economic benefits remain a major consideration for decision-makers, climate change is another important driver for the accelerated deployment of renewables for many countries and increasing numbers of stakeholders. Renewables, together with energy efficiency, have been widely recognised as a key element in any solution to climate change, and IRENA has been recognised as a central player in highlighting and facilitating international action in this area. Climate is sure to remain a major driver for renewable energy deployment, amid the widening effort to catalyse climate action in conjunction with NDC implementation. While some 140 countries mention renewables in their NDCs, IRENA’s analysis shows the potential for deployment to be significantly underestimated. Thus, highlighting the business case for renewables in climate settings remains a priority, as does providing support to countries in realising their renewable energy potential and maximising the resulting benefits across different sectors and communities.

<b>Output:</b> Contribution of renewable energy to socio-economic and climate goals articulated.		
<b>Deliverables</b>		
<b>Knowledge Creation</b>	<b>Tools and Methodologies</b>	<b>Engagement and Outreach</b>
<ul style="list-style-type: none"> <li>• Quantitative analysis of socio-economic benefits</li> <li>• Report on best practice to maximise local benefits from renewable energy projects</li> <li>• Report on leveraging local capacity (selected technologies)</li> <li>• Jobs annual review 2018</li> <li>• Jobs annual review 2019</li> </ul>	<ul style="list-style-type: none"> <li>• Analytical framework for the renewable energy components in NDCs</li> </ul>	

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## Informing markets

53. The development of timely and reliable data and unbiased information is critical to informed decision-making. IRENA will continue to demonstrate the evolving business case for renewables and help level the playing field in today's markets. Accurate statistics support investment, help to reduce risks, and are essential for the development and monitoring of policies, plans and programmes. To meet those needs, IRENA will continue to focus on collecting and disseminating renewable energy statistics and providing training and technical guides on data collection. IRENA has developed a comprehensive dataset on grid-connected electricity from renewable sources. In the coming period, this will be expanded to other areas, such as off-grid electricity generation and renewable heat production. Activities will be implemented in collaboration with partners based on shared interest in raising the quality of renewable energy statistics. Through the international framework for SDG reporting, IRENA's statistics work will also continue to strengthen the collection of the data required for monitoring SDG implementation, particularly in the areas of energy access, renewable energy and investment. In addition, statistics showing local benefits may start to demonstrate, conclusively, how renewables are contributing to other SDGs by providing energy for agriculture, health and education among others.

54. Since 2011, more than half of new power generation has been renewable, as IRENA's current capacity statistics show. Dramatic cost reductions have been a major driver of this trend. By developing an extensive database of real-world project costs, IRENA has become a trusted source for transparent data on the costs and performance of renewable energy technologies. This allows IRENA to formulate compelling messages about the business case for renewable energy, and to provide in-depth analysis that addresses policy questions on such issues as support levels, cost expectations in new markets, and future cost reduction potential. Responding to feedback from Members, IRENA will prioritise targeted and timelier reports that support wider stakeholder consultation and can be injected directly into the energy transformation debate. IRENA's Renewable Cost Database will remain the backbone of this work and will expand to include more emphasis on industry engagement, including through the IRENA Renewable Costing Alliance. In addition to periodic updates of the Renewable Power Generation Costs series, IRENA will directly address Members' questions on costs and competitiveness.

55. Sustained market growth for renewable energy technologies can only be achieved if expectations regarding performance, safety and durability are met. Despite the importance of quality assurance and standardisation, no policy-driven international organisation in the energy sector has actively and consistently supported countries in implementing such instruments. IRENA's work on quality assurance and standards, therefore, has started to fill an important knowledge gap. As a neutral international organisation, IRENA is optimally placed to bring together policy-makers, quality infrastructure bodies, industry and consumers. Going forward, IRENA will expand its analytical work to support the development of quality infrastructure. Focusing on selected emerging technologies, the Agency will continue to collect best practices for the development of quality assurance systems for renewable energy. The resulting information will also form an integral part of the platform International Standards and Patents in Renewable Energy (INSPIRE), which gives decision-makers, project developers and entrepreneurs a strategic window on renewable energy patents and standards. This platform will be expanded with the support of a wide range of expert and technical partners.

<b>Output:</b> Unbiased, timely and accurate information about renewable energy trends and developments.		
Deliverables		
Knowledge Creation	Tools and Methodologies	Engagement and Outreach
<ul style="list-style-type: none"> <li>• Renewable energy statistics 2018</li> <li>• Renewable energy statistics 2019</li> <li>• Four cost-related reports, including annual updates on power generation</li> <li>• Two topical cost briefs</li> <li>• Two reports on quality assurance (offshore wind and smart grids)</li> </ul>	<ul style="list-style-type: none"> <li>• Technical guides on data collection</li> <li>• Technical guides on quality infrastructure for emerging renewable energy technologies</li> <li>• Expanded Renewable Cost Database</li> <li>• INSPIRE platform enhancement</li> <li>• INSPIRE new module on quality assurance systems for renewables</li> </ul>	<ul style="list-style-type: none"> <li>• Training on data collection</li> <li>• Training on the implementation of quality infrastructure</li> </ul>

### Amplifying impact

56. Effective communications, including dissemination of programmatic activities, products and messages, is central to the success of IRENA’s mission. The pace of change in technology and media has spawned an unprecedented supply of information, while providing countless channels of communication and means of dissemination. In this continuously changing landscape, IRENA’s ability to adapt its communication and outreach strategies will determine whether its voice is being heard. This work hinges on the development of products, messages, tools and activities of uncompromising rigour, quality and efficiency. IRENA will concentrate, therefore, on fewer, but highly relevant, topics where it has a clear comparative advantage or can build upon already established areas of excellence. Communication and dissemination will become an integral part of the Agency’s programmatic work, so that the wealth of information arising from projects can be adapted as needed to reach different target audiences. Optimising the planning and distribution of publications and measuring their impact will help IRENA to concentrate efforts on the most sought-after products.

57. IRENA will strive to optimise its content dissemination by making use of the latest technologies via digital channels, including the revamped IRENA web ecosystem, and engage more effectively with digital influencers. Systematic editorial management and ongoing improvement of IRENA’s new web infrastructure will ensure the quality of communications products and services. To amplify the communication of IRENA products and messages, IRENA will strengthen its collaboration with media, working with its growing network of journalists and media partners, including in key regional markets.

58. IRENA will produce compelling content for distribution across traditional media, social media and web channels. Other timely strategic communications materials, such as press releases and web-based features, fact sheets, thought-leadership articles and opinion pieces, media kits and impact stories, will also continue to be produced. These will document compelling examples of how renewable energy has



improved people's lives and is key to economic growth and development. Increased emphasis will be placed on sharing impact stories.

59. Members are critical partners in amplifying IRENA's impact, particularly through communication and outreach activities. To disseminate messaging and materials as effectively as possible, IRENA will continue to develop links with Members' communication structures, as well as with those of other organisations. Further engagement opportunities will be sought through the emerging networks of parliamentarians and the IRENA Coalition for Action.

<b>Output:</b> Knowledge generated by IRENA is disseminated widely and accessible to target audiences.		
Deliverables		
Knowledge Creation	Tools and Methodologies	Engagement and Outreach
<ul style="list-style-type: none"> <li>• Communication content for broad consumption</li> <li>• Communication content for target audiences</li> </ul>	<ul style="list-style-type: none"> <li>• IRENA website maintenance</li> <li>• Publication development planning and management</li> </ul>	<ul style="list-style-type: none"> <li>• Collaboration with media</li> <li>• Member Communicators network</li> <li>• Dissemination of IRENA knowledge products (traditional and digital)</li> </ul>

### **III. Network Hub**

*Objective: Provide an inclusive platform for all stakeholders to foster action, convergence of efforts and knowledge sharing for impact on the ground.*

60. By embracing renewable energy technologies, countries stand to benefit from systems that are cleaner, smarter, economically beneficial, more democratic, more secure and resilient. Increasingly, renewable-based technologies are also cheaper, particularly when the external costs of pollution and climate change are factored in. Long-standing misconceptions about the difficulty of integrating VRE are being dispelled, as proper planning makes feasible the integration of relatively high levels of renewable power generation into interconnected grids at modest incremental cost. The rising level of ambition is attested by some 170 national energy plans that include renewable energy targets, along with the NDCs of some 140 countries that consider renewables essential for decarbonisation.

61. Realising these plans and deploying renewable energy at scale requires a strong operational focus and extensive interconnections. These interconnections are necessary not only between power grids, but also among the networks of people who must play a role in devising the energy system of the future. New mindsets and forms of collaboration, crossing the traditional national, public-private and inter-industry boundaries, will be needed to address the challenges ahead.

62. Collaborative frameworks, formed around issues of common interest, have been the backbone of IRENA's work to catalyse action on renewables. In the next biennium, there will be a sustained effort to strengthen existing alliances, coalitions, and partnerships, as well as forming new ones. A wealth of knowledge can be found within IRENA membership, and Members have called for dedicated work to harness it. Concentrating efforts on priority actions will enable greater Member collaboration and peer-to-peer exchange, transfer of knowledge and provision of targeted advice. Initiatives formed under the umbrella of climate action, namely the Africa Clean Energy Corridor (ACEC), Global Geothermal Alliance (GGA) and SIDS Lighthouses initiative, will further pursue their respective objectives and engage new partners to accelerate progress. IRENA's existing collaborative platforms will remain essential as a means to convene diverse actors. Additional work will be undertaken to strengthen collaborative engagement with legislators, academia and research institutions.

#### **Regional action agenda**

63. Regional cooperation is a key element to boost efficiencies and bring about economies of scale in the deployment of renewable energy technologies. Adopting an integrated approach to trans-boundary energy issues – such as planning, trade, regulatory frameworks and policies, regional power infrastructure and other factors – would allow different countries to benefit from access to a wider, regional range of renewable resources at affordable prices. Working from the outset to promote regional cooperation, IRENA today can offer tailored regional activities worldwide. With valuable lessons acquired over the last seven years, the Agency has been able to refine its regional approaches, understand where it can add the most value, and concentrate on the optimal use and dissemination of its expertise and knowledge.

64. IRENA's major comparative advantages stem from its global membership and targeted mandate, which give it considerable convening power and allow it to pursue a holistic approach to the deployment of renewable energy. A central part of IRENA's work going forward will be the creation of a partnership base around regional initiatives, aimed at sustaining the political commitment, engaging key stakeholders and helping to channel resources to accelerate renewable energy deployment. Much of this work will aim to strengthen peer-to-peer collaboration and amplify impact through coordinated action.

65. Targeted activities, rooted in strong ownership by local actors, will be adapted to prevailing circumstances and needs in each region. IRENA has already helped to develop, through iterative

processes and wide consultation, several regional action agendas and plans for the deployment of renewables. These agendas and plans will continue to guide the Agency's regional work in successive programmatic cycles, maintaining a longer-term perspective while working step-by-step to transform the energy system.

- Work in **Africa** will advance the action agendas contained in the 2013 Ministerial *Communiqué on the Africa Clean Energy Corridor* and in the West Africa Clean Energy Corridor (WACEC) plan, approved by Ministers of the Economic Community of West African States (ECOWAS) in 2016 and endorsed at the Heads of State Summit in June 2017. Building on the work to date, targeted activities in ACEC and WACEC will include: sites appraisal for the development of wind and solar projects; and capacity building for policy-makers, regulators and utilities on the design and use of Power Purchase Agreements. Activities in the WACEC will also include long-term planning support and capacity development for the integration of variable renewables. All these activities will be undertaken in close collaboration with key regional stakeholders, guided by the African Union (AU) Commission and its Programme for Infrastructure Development in Africa (PIDA) strategy.
- IRENA's regional renewable energy outlook study on the Association of **South-East Asian Nations (ASEAN)**<sup>4</sup>, conducted in cooperation with ASEAN's member states and the ASEAN Centre for Energy, highlighted how increased reliance on renewables would bring lower costs, lower levels of air pollution and a more secure and robust energy supply. To realise this potential, the ASEAN Energy Ministers and IRENA released a joint statement in September 2017 outlining a long-term collaborative plan to accelerate renewable energy deployment in line with the region's 2025 renewables target of 23%. Subsequent work – in close collaboration with regional stakeholders including ASEAN's Secretariat, Centre for Energy and Heads of Power Utilities/Authorities – will focus on energy planning, system integration, innovation, costing, project facilitation and financing for renewables, as well as social and economic benefits. In the coming period, a plan of action will be refined with an immediate focus on energy planning, system integration and social and economic benefits.
- In June 2017, the *Astana Communiqué on Accelerating the Uptake of Renewables in Central Asia* identified key action areas for collaboration with IRENA. The resulting regional action plan sets forth a set of priorities for implementation in the coming period. These include the assessment of regional solar and wind resource potential, gaining an enhanced understanding of, and capacity for, integration of variable renewables, and collection of reliable renewable energy data. These activities will be implemented in close collaboration with a wide range of national, regional and international partners.
- The *Abu Dhabi Communiqué on Accelerating Renewable Energy Uptake in Latin America*, adopted by the countries of that region in 2015, similarly identified key priorities and opportunities. These regional priorities were reinforced by the findings of the IRENA's analysis on Latin American markets<sup>5</sup>, which underscored the need to catalyse public and private finance, adapt policies to changing market conditions and adopt a system-level approach in the power sector. In the coming period, technical and regulatory support for the integration of variable renewables will remain a focus, particularly through the Clean Energy Corridor for Central America (CECCA) initiative, including capacity building on the design and use of Power Purchase Agreements (PPA). Steps will be taken to fulfil the planning and resource assessment components of the CECCA strategy, as well as to advance the regional strategy for South America. The Latin American Energy Organization (OLADE) and Central American Integration System (SICA) remain key partners in IRENA's work in the region.

<sup>4</sup> *Renewable Energy Outlook for ASEAN* (IRENA, 2016)

<sup>5</sup> *Latin America Market Analysis* (IRENA, 2016)

- The **Pan-Arab Clean Energy Initiative (PACE)**, a regional initiative that promotes the integration of greater shares of renewables into power systems of the Arab region, was endorsed by the Arab Ministerial Council in September 2014. Since then, IRENA has worked with the Arab League, the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE) and other key regional partners to develop a PACE Action Plan. In the coming biennium, IRENA will support projects to identify solar and wind potential across the Middle East and North Africa (MENA), as well as capacity building on renewable energy policy and socio-economic benefits. In response to the request from regional stakeholders, IRENA will update the market analysis for the countries of the Gulf Cooperation Council (GCC).<sup>6</sup>
- The *Abu Dhabi Communiqué on Accelerating the Uptake of Renewables in South East Europe (SEE)*, adopted in January 2017, also provided the basis to develop a regional action plan. The market analysis of the region has been identified as one of the key prerequisites to gaining a better understanding of the conditions for deployment of renewables. This analysis will be the fourth in IRENA’s effort to bring a greater understanding to regional market circumstances. Additional activities will include capacity building for long-term planning, policy development and project support, in close collaboration with the Energy Community and the European Union (EU).

<b>Output:</b> Regional action plans and initiatives supported by IRENA.		
Deliverables		
Knowledge Creation	Tools and Methodologies	Engagement and Outreach
<ul style="list-style-type: none"> <li>• SEE regional market analysis</li> <li>• GCC regional market analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Solar and wind site assessment/mapping (Africa, Central Asia, MENA)</li> <li>• Financial assessment tool for renewable energy PPAs (Latin America)</li> </ul>	<ul style="list-style-type: none"> <li>• Planning workshops (Africa, MENA, SEE, Southeast Asia)</li> <li>• Regulation and policy workshops (Africa, Latin America, Central Asia, MENA, SEE, Southeast Asia)</li> <li>• Renewable energy statistics workshop (Central Asia)</li> <li>• Project development workshop (SEE)</li> <li>• Grid integration workshops (Africa, Central Asia, Latin America, Southeast Asia)</li> <li>• Regional collaboration platforms and partnerships</li> </ul>

<sup>6</sup> *Regional Energy Market Analysis: The GCC Region* (IRENA, 2016)

## Collaborative platforms

66. With an increased operational focus, the creation of collaborative platforms and leveraging partnerships is becoming essential to ensure the sustained impact of IRENA's work. The growing momentum of climate action has provided a strategic opportunity to advance selected activities and priorities. This includes the engagement with SIDS that has been central to IRENA's work from the outset. Despite abundant natural resources, SIDS are severely constrained in terms of economic growth potential with major barriers to investment, among other things. Cost-effective and resilient energy systems based on renewables, however, are redefining this situation.

67. With the strong support of IRENA Members, the SIDS Lighthouses initiative was launched at the Climate Summit in 2014 as an enabling platform for the strategic deployment of renewable energy. Today, the initiative includes 36 SIDS, from Africa, the Caribbean, Pacific, Indian Ocean, Mediterranean and the South China Sea, and 19 other partners, with these numbers still growing. In the next programmatic cycle, the development and implementation of NDCs will become an integral part of IRENA's work with SIDS. Through SIDS Lighthouses initiative, IRENA will pursue additional partnerships and collaborative efforts to use and leverage applicable knowledge and technical expertise. This will include proactive engagement with partners to channel resources to priority areas, taking into consideration the development objectives outlined in the S.A.M.O.A. Pathway. With support from development partners, IRENA will also continue to provide direct assistance on issues such as island energy roadmaps, grid integration, and project support and facilitation.

68. The momentum created by climate action has drawn renewed attention to the untapped potential of geothermal energy. The GGA initiative, launched at the 21<sup>st</sup> session of the Conference of the Parties (COP21) in Paris, is a global platform for improved dialogue, cooperation and coordinated action among policy-makers, industry and other stakeholders. The GGA constituency<sup>7</sup> has expanded to 42 member countries and 31 partner institutions. IRENA will continue to coordinate the implementation of the GGA Action plan and provide expert contributions as required. IRENA will encourage the creation of a geothermal practitioner group to facilitate peer-to-peer cooperation. With substantive and financial support from GGA members, IRENA will be further able to consolidate and disseminate knowledge on the complex challenges associated with geothermal development, potentially helping to unlock investments on a global scale.

<b>Output:</b> Multi-stakeholder approaches to renewable energy deployment are supported by IRENA.		
Deliverables		
Knowledge Creation	Tools and Methodologies	Engagement and Outreach
<ul style="list-style-type: none"> <li>Annual progress report on SIDS Lighthouses initiative</li> </ul>	<ul style="list-style-type: none"> <li>SIDS knowledge sharing platform</li> <li>GGA knowledge sharing platform</li> </ul>	<ul style="list-style-type: none"> <li>SIDS Lighthouses Facilitation</li> <li>GGA coordination</li> <li>Creation of GGA Practitioner group</li> </ul>

<sup>7</sup> as of November 2017

**Multi-stakeholder engagement**

69. While the Agency engages with a range of stakeholders through its programmatic activities, experience has shown that structured and regular interaction with different constituencies can greatly contribute to the advancement of its mission. IRENA’s Coalition for Action has been one of the major vehicles for such as engagement. The Coalition’s mission, revised through stakeholder consultation, calls for fostering a global dialogue among non-governmental and governmental stakeholders to develop actions to drive the energy transition forward, specifically by increasing the share of renewables in the global energy mix.

70. With the private sector as a central target group, the Coalition aims to form a global hub for public-private engagement on renewable energy industry trends and evolving market dynamics. IRENA will continue to coordinate the Coalition’s steering group throughout the year, with a subset of members through topical working groups and with all members at annual strategy meetings. IRENA will also engage Coalition members directly in its work, such as through peer-reviewing drafts, participating in IRENA events, collaborating on communication campaigns, and providing input to strategic IRENA documents. Coalitions’ Business and Investor group will also facilitate public-private dialogue and address topics such as corporate sourcing. Conversely, IRENA will actively participate in similar efforts by others, to provide expert input and systemize its engagement with the private sector, expert institutions and academia among others.

71. Another target group of the Agency’s multi-stakeholder engagement has been parliamentarians, who play a key role in the national processes that shape the debate on energy and related policies. Disseminating key knowledge and targeted information to legislators, as well as facilitating exchanges of experience and best practices, can greatly inform decision making and streamline some of the legislative processes required to foster renewables. Moreover, since legislators are representatives of their constituencies, empowering them with an avenue for collaboration and knowledge sharing can help bolster public support for renewables. Since 2015, IRENA has provided tailored information to legislators on a regular basis and organised dedicated meetings for them on the margins of its annual Assembly. Based on growing interest and the positive feedback received, IRENA will further pursue a strategy for structured engagement and information-sharing with this important constituency.

<b>Output:</b> Engagement of a broad range of stakeholders is supported through IRENA communications and events.		
<b>Deliverables</b>		
<b>Knowledge Creation</b>	<b>Tools and Methodologies</b>	<b>Engagement and Outreach</b>
<ul style="list-style-type: none"> <li>Tailored information for parliamentarians</li> </ul>	<ul style="list-style-type: none"> <li>Coalition for Action web platform</li> </ul>	<ul style="list-style-type: none"> <li>Coalition for Action coordination</li> <li>Communication and outreach to parliamentarians</li> </ul>

## IV. Source of Advice and Support

*Objective: Support country-level decision-making to accelerate the renewables-based transformation of national energy systems, advance strategies to diversify energy sources, reduce global emissions and achieve sustainable development.*

72. Investment in renewable energy has undergone a quantum leap, particularly in the emerging and global economies, in the last decade. For many countries, renewables are perceived as having advantages beyond simply as a cost-effective, environmentally advantageous way to achieve energy security, expand energy access and depend less on fossil-fuel supply. Increasingly, their deployment is also recognised as an economic opportunity, helping to diversify the skill base and boost industrial development and employment and achieve energy security. Renewable energy solutions are being deployed to address a range of development priorities, including health, education, agriculture, and water supply.

73. Through direct engagement with Members, IRENA has made its knowledge products increasingly policy-relevant and accessible and has refined its tools, platforms and methodologies to better address common challenges. In the course of this work, IRENA has witnessed a wealth of innovative approaches, employing renewables to solve multiple problems. One key lesson has been that translating knowledge into on-the-ground change requires local solutions and tailored advice. Local solutions may often also be replicable, and IRENA is optimally placed to consolidate and disseminate successful approaches. A mix of targeted analyses, tools and methodologies, and operational support is increasingly needed to overcome specific deployment barriers and scale up investment.

74. With the 2030 Agenda driving sustainable development and NDCs stimulating low-carbon development and investment, renewable energy is poised to expand at a rapid pace. The lack of a clear investment pipeline for renewables persists as a barrier to deployment at scale. Such a pipeline – linked to proven market practices and innovative financial risk-management instruments – is a necessary tool for achieving scale. Engagement with the private sector, at all levels and in all stages, will play a major role in achieving this and in making the next step-change on the world's path to sustainable energy future.

### **Project support and facilitation**

75. IRENA has developed a suite of project support and facilitation capabilities, including the Global Atlas, Project Navigator and Sustainable Energy Marketplace (Marketplace) platforms. The Global Atlas has become a point of reference for mapping of renewable resources and is increasingly used to identify potential project sites. Project developers worldwide are turning to the Project Navigator to help them make their project plans bankable. Such projects also enter the Marketplace, which helps to link these projects worldwide to financing institutions and service providers. These tools are highly accessible and have been used successfully in multiple projects, including in those backed by the IRENA/ADFD Project Facility or linked to other IRENA initiatives. In the next programmatic cycle, the Agency will continue to operate, refine and expand its project-related platforms and tools. A stronger integration and a streamlining of the three platforms will simplify the access. An increased effort will be made to deploy these tools through other country and regional work and initiatives.

76. The Global Atlas will be maintained and further developed to enhance the quality and quantity of its maps and data to provide investment-grade information. Outreach and capacity building for the Project Navigator will intensify, to boost user numbers and promote effective project development. Additional modules will be developed, and content will be progressively translated into additional languages. The Marketplace, meanwhile, will continue to be populated and further expanded to accelerate financing through active matchmaking. Existing functionalities will be continuously refined, while outreach targeting project developers and investors underline the Marketplace's value as a project facilitation platform.

77. With the growing maturity of these tools, IRENA will consolidate and analyse user information and experiences to offer insights into effective project development. The Agency will pilot the combined use of assets – datasets, tools, services, partnerships and expertise – to initiate potentially high-impact activities to accelerate renewable energy projects at different sizes and stages of readiness. Furthermore, IRENA is co-leading a multi-stakeholder initiative to standardise project documentation for solar PV projects. Templates for project documents will be released, after an in-depth review process, and disseminated to market players to facilitate streamlining of the project development process and enable aggregation through project bundling. This work will be expanded to explore standardisation opportunities and promote templates for other technologies.

<b>Output:</b> Tools, platforms and partnerships are provided to support renewable energy deployment.		
Deliverables		
Knowledge Creation	Tools and Methodologies	Engagement and Outreach
<ul style="list-style-type: none"> <li>• Design and development of standardised contract templates</li> </ul>	<ul style="list-style-type: none"> <li>• Functional Global Atlas applications</li> <li>• IRENA Project tracker dashboard</li> <li>• Project Navigator module on competitive technical requirements for EPC tender</li> <li>• Sustainable energy Marketplace global coverage</li> <li>• Project collection and screening</li> </ul>	<ul style="list-style-type: none"> <li>• Project Navigator modules in French</li> <li>• Dissemination of standardised contract templates</li> <li>• Marketplace regional platforms</li> <li>• Capacity building workshops on project development</li> </ul>

### Renewable energy solutions lab

78. Decentralised renewable energy solutions can contribute to multiple SDGs, from poverty elimination, nutrition, health, water, energy and environment, to decent work, sustainable infrastructure/industry, sustainable communities, reduced inequalities and expanded partnerships. Initiatives to promote decentralised renewables, therefore, support healthier and more prosperous communities while mitigating climate change and helping to preserve the environment and natural resources. IRENA will continue to support innovation and development for off-grid renewable energy in line with the sustainable development agenda.

79. Renewable energy entrepreneurs can play a major role in this respect. Since 2015, IRENA has been helping entrepreneurs in West Africa to scale up renewable energy enterprises, refine their project proposals, obtain finance and form a regional association for solar entrepreneurs. The ECOWAS Renewable Energy Entrepreneurship Support Facility, established in collaboration with the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), is today a flourishing self-sustained facility. In collaboration with development partners and incubation centres, IRENA will replicate this



concept in other African sub-regions, starting with the Southern African Development Community (SADC). IRENA will also work with financial institutions to strengthen their capacity to appraise renewable energy projects and properly assess project risks, thereby increasing their confidence to finance such projects.

80. IRENA will highlight different opportunities to yield socio-economic benefits from energy access, encouraging the more effective inclusion of productive uses of renewable energy into projects and programmes. Building on earlier work on the agri-food chain and the water, energy and food nexus, IRENA will analyse specific policy measures to support the integration of decentralised renewable energy solutions in different agricultural value-chains. The analysis will focus on emerging nexus-related topics, such as land-resource management for specific technologies.

<b>Output:</b> Information and capacity building provided on renewable energy solutions for sustainable livelihoods.		
Deliverables		
Knowledge Creation	Tools and Methodologies	Engagement and Outreach
<ul style="list-style-type: none"> <li>• Three policy briefs on nexus-related topics (gender, health, agriculture)</li> </ul>		<ul style="list-style-type: none"> <li>• Southern African Development Community (SADC) Renewable Energy Entrepreneurship Support Facility</li> <li>• Two workshops for entrepreneurs, financing institutions and incubation centres</li> <li>• Direct mentoring</li> </ul>

### Local solutions and tailored advice

81. As the ambition of countries increases, so does the demand for assessment of their renewable energy potential and possible pathways for cost-effective deployment. To date, IRENA has provided such support upon request through Renewables Readiness Assessments (RRAs) and REmap Country Reports, as two country-specific tools. The RRA is a country-led, multi-stakeholder process that assesses the key barriers to deployment and recommends actions to overcome them. REmap Country Reports assess the realistic potential to scale up the renewable energy by identifying attainable technology options and pathways. A combined RRA/REmap pilot, recently implemented in Egypt and Thailand, has emerged as a viable model for providing advice for some countries on enabling frameworks combined with a longer-term roadmap for technology deployment. Importantly, this process has proven to be efficient for the countries involved as well as for the Agency.

82. To simplify access to advisory services and streamline the use of in-house tools and expertise, IRENA will introduce the Pathways for Renewable Energy Transition (PRET) interface, along with an associated report series. The scope of PRET analysis will be customised to fit local circumstances, while

the analytical content of the PRET will rely on IRENA’s in-house expertise in resource assessment, planning, policy, energy access, job creation, nexus, grid integration and other areas. PRET analysis will align with NDCs and other country commitments and strategies to achieve sustainable development.

83. Technical Advisory support will be fully aligned with PRET recommendations, as well as regional action agendas, regional market analysis and capacity need assessments. Key factors in prioritising requests will include potential impact, scalability and sustainability of the requested service. Staff and funding requirements will also be considered. With the channelling of support to complementary projects, IRENA’s various programmes and services will further converge to bolster economically sound, inclusive transformation of the energy system.

<b>Output:</b> Advice and capacity building provided to countries about the options for accelerated deployment of renewable energy.		
<b>Deliverables</b>		
<b>Knowledge Creation</b>	<b>Tools and Methodologies</b>	<b>Engagement and Outreach</b>
	<ul style="list-style-type: none"> <li>• Five country processes for renewables-based transition</li> <li>• Power system flexibility assessment for countries upon request</li> <li>• National master plans supported in Africa</li> <li>• Grid integration and power system operation support upon request</li> </ul>	

## V. International Cooperation and Strategic Engagement

*Objective: Provide leadership in global agenda-setting on energy transformation, and ensure active Member participation in the delivery of the programme of work.*

84. The success in shaping the energy transformation in the most beneficial way for societies and economies, depends on a broad range of factors. National policies and international commitments are redrawing the existing energy landscape, reflecting changing aspirations, priorities and plans. Rapid innovation is redefining the complex network of stakeholders throughout the global economy. Regional production profiles are shifting, sometimes at a rapid pace and with a profound impact on geopolitical dynamics. With many parts of the global energy system in flux, no single actor can anticipate what the future holds. International cooperation is therefore essential to ensure that the path to global energy transformation leads to a prosperous, inclusive and sustainable future.

85. In defining the MTS, Members emphasised that IRENA's clear mandate and universal reach offer a unique and inclusive platform for international cooperation on energy transformation. Assembly sessions and Council meetings are key avenues for Members to shape the global energy agenda, monitor progress and guide the Agency on all policy, programmatic and governance matters. Plenary discussions, Ministerial Roundtables and programmatic events will therefore continue to serve as platforms for dialogue, as well as an important forum for delegates to participate in knowledge-sharing and initiate joint activities and cooperation. High levels of inclusiveness, and ownership are a lynchpin of this undertaking. The Fund for Developing Country Representatives (FDCR) has been key in encouraging the participation of representatives of Least Developed Countries (LDCs) and SIDS at IRENA governing body meetings. This Fund relies on voluntary contributions, and its replenishment, along with efficient management, guarantees that the advantages of the Agency's global membership are fully exploited.

86. Members have further emphasised the need to align different national approaches to international energy cooperation, especially to ensure efficiency and avoid duplication of mandates. To assist in this regard, IRENA will collaborate with Members to ensure coherence and synergies in their interactions with other international processes and organisations, particularly where renewable energy-related issues are discussed.

87. Through its New York Liaison Office, IRENA will systematically engage with the United Nations System and other partners, raising awareness of IRENA's knowledge products and outcomes of its meetings. Special emphasis will be placed on establishing concrete links to the 2030 Agenda and the Paris Agreement, with a focus on highlighting the importance of renewable energy to meet global development and climate goals. Specifically, targeted outreach will support monitoring and implementation efforts by countries and the international community on SDG 7 (affordable and clean energy), particularly through highlighting how renewable energy solutions can help realise universal access to modern energy services and achieve poverty eradication goals.

88. More tailored outreach material will be provided to support Members in assessing the critical facets of the global energy transformation. Through channels such as the periodic bulletin, programmatic In-Focus and publications briefs, and deeper engagement through a revamped web presence, Members will benefit from content specifically targeted at policymakers keeping them abreast of the latest developments and the activities of the Agency throughout the year. The content will be regularly updated, and the engagement will be expanded to include more regular webinars, among other things.

89. To facilitate ongoing Member engagement, IRENA will continue to broaden and strengthen the framework of Permanent Representatives, currently comprising 46 countries. Regular briefings and discussions will be held to sustain interest in, and knowledge of, the work of the Agency and the ongoing transformation of the energy system. As requested by Members, additional avenues will be

sought to facilitate peer-to-peer exchanges and knowledge-sharing. Efficient and cost-effective ways to achieve this will be devised in cooperation with Members. The Agency will also continue its dialogue with countries that have yet to become Members, with the view to attaining universal membership and commitment to its mandate.

### Outputs

- Strategic management of the Agency and thought leadership and coherence of the message on renewables in the global discourse on energy.
- Regular Member interaction and cooperation on programmatic and governance issues.
- Effective communication and outreach to Members to ensure the flow of information and active engagement.
- Substantive support and efficient servicing of meetings of the governing bodies is ensured.

## VI. Efficient, Transparent and Innovative Management

*Objective: Ensure quality and accountability in programme planning and implementation and the associated management of financial, human and information technology resources to achieve impact in the programme of work and medium-term strategy.*

90. The achievement of IRENA's strategic objectives relies on its responsiveness, effectiveness, internal capacity, and institutional efficiency. IRENA needs to remain dynamic, innovative and results focused, underpinned by transparency and accountability as hallmarks of an open institution. The Agency's highest standard for excellence in management is sought through close attention to three strategic goals:

- A diverse, agile, results-oriented workforce, committed to enabling IRENA's mission and continuously expanding their capabilities to shape the Agency's future.
- Effective, efficient, strategically aligned business processes that integrate and capitalise on the agency's human capital and technology resources.
- Flexible, reliable, state-of-the-art business tools and technologies designed to support the Agency's mission, policies and processes.

91. Achievement of these goals demands a sustained commitment to business process innovation achieved through consideration of what the Agency does and how it does it. These business processes must be aligned to support IRENA's mission and support operational needs efficiently and consistently.

92. Building on the stable and streamlined administrative structure developed in the past seven years, the next programmatic period will strive to support consistent and cost-effective results and processes, through proven management practices. Priority will be placed on human capital management, technology solutions, efficiency and timely processes, and financial management. IRENA's approach to strategic workforce planning or succession planning will ensure that the Agency has the right people with the right competencies at the right time. This will include a concerted effort to tap into Member expertise, including through secondment and other arrangements, to allow for active and systematic input in IRENA's programmatic activities. Succession planning has also become of strategic relevance. These efforts will encompass both the development and retention of critical expertise and competencies, and the identification and recruitment of fresh talent from the outside.

93. This approach to human capital will allow the Agency to anticipate and meet its staffing needs in the challenging, dynamic environment that constitutes work at the energy frontier and ensure that the Agency is well-prepared to meet the expectations of its membership with a competent and flexible workforce. Growing competition from international organisations and the private sector in attracting and recruiting staff in the sector demands a proactive outreach and sourcing plan. The effectiveness of recruitment advertising methods will also be evaluated on an ongoing basis to align these methods with best practice.

94. To obtain maximum efficiencies in the delivery management services, measures have been taken to ensure a critical mass of support services required to deliver quality programmes and secure financial and legal accountability. IRENA administrative structures however remain lean, with continuous efforts to improve efficiency measures through business process improvements, staffing optimisation and implementation of technology solutions, including enterprise resource planning (ERP). In this context, IRENA will make better use of information and communications technology solutions to enhance business analytics, increase productivity, reduce transaction costs, facilitate sustainability as well as provide direct programme support.

95. In support of the efficient and consistent implementation of programmatic activities, a number of functions have been streamlined and centralised. These include the publication processes, organisation and management of meetings and events, travel of staff and participants, among others. This approach has proven to be both efficient and cost-effective, while ensuring consistency across activities, divisions

and duty stations. In the coming biennium, these functions will be optimised to also contribute to other programme-related priorities such as monitoring and evaluation purposes. For instance, central event and travel coordination will allow for systematic quantitative measurement of volume, quality, coverage and audience in IRENA meetings, workshops, and other convening activities.

96. Implementation of the Work Programme will require significant reliance on non-core resources. In this context, IRENA will intensify its cooperation with donors and emerging partners through flexible and quality funding channels and instruments. Effective management of financial resources made available to the Agency, as well as their rigorous monitoring and reporting are essential to maintaining Members' trust and to the long-term ability to diversify the resource base. Thus, the enhancement of the management of voluntary contributions and donor reporting will continue to be paramount.

97. Consistent with the current approach, the Agency will proactively address management recommendations provided through internal review and oversight, as well as those identified by the Agency's internal and external audit functions. In response to the feedback from Members, and given an increasing reliance on diversified resource base, the focus will be placed on budget and performance alignment.

98. The Agency will maintain a sustained dialogue with its host countries on the implementation of the respective agreements concerning Headquarters in Abu Dhabi and the Innovation and Technology Centre in Bonn. It will also raise Members awareness on the importance of granting to the Agency the privileges and immunities it requires for the exercise of its functions.

99. IRENA will increase the environmental sustainability through office measures and business practices. This will be pursued in IRENA's daily work as well as in the organisation of governing body and other meetings. PaperSmart policies, promoting electronic means for document distribution and working closely with venue and service providers to ensure environmentally sound practices, in line with common relevant international guidelines on sustainable meetings are some of the measures being considered.

<b>Outputs</b>
<ul style="list-style-type: none"><li>• Accountability and transparency in the management of the Agency and its resources.</li><li>• Resource diversification strategies and plans developed and operationalised.</li><li>• Evaluation system to monitor progress and improve performance over successive programmatic cycles introduced.</li><li>• Effective review, oversight and legal support with timely implementation of related recommendations</li><li>• Effective workforce planning and efficient staff recruitment maintained, with due regard for geographical representation and gender balance.</li><li>• Effective utilisation of resources through finance and budgetary management, in line with IRENA regulations and procedures</li><li>• Efficient support to programme implementation, including procurement, travel and general services, compliant with IRENA rules, regulations and procedures</li><li>• The use of ICT tools and services to improve organisational effectiveness and staff productivity.</li></ul>