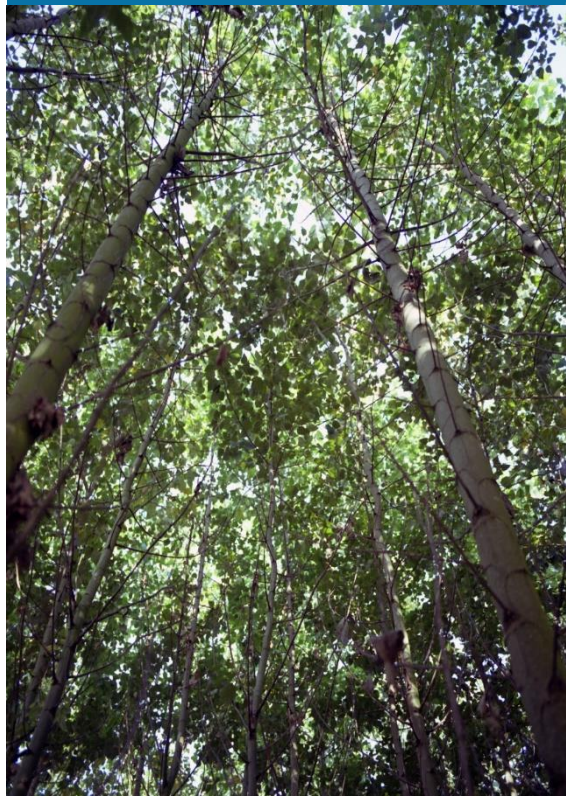


Bioenergy @IRENA: Accomplishments and Work Scope Proposed



***IRENA Seventh Assembly:
Side Event on
Bioenergy's Role in Doubling
Renewable Energy Supply
Abu Dhabi
13 January 2017***

**Dolf Gielen, Director
IRENA Innovation and
Technology Centre**



- ***Bioenergy is essential to sustainable development:***
 - *Largest form of renewable energy today*
 - *Only realistic renewable option for heavy transport*
 - *Best option for CO2 removal from atmosphere*
- ***Bioenergy faces serious challenges:***
 - *Economic competitiveness*
 - *Biofuel vs petrofuel or power for light transport*
 - *Biogas vs liquefied petroleum gas for cooking*
 - *Wood vs fossil fuel, other renewables for power*
 - *Sustainable sourcing*
 - *Surplus to food requirements*
 - *Carbon-storing, land-efficient*

- Programmatic approach with ***three action areas***:
 - ***Sustainable Supply*** of bioenergy ***feedstock***
 - ***Cost-effective Technology*** for bioenergy ***conversion***
 - ***Successful Strategies*** for bioenergy ***scale-up***
- ***Partnerships for expertise and outreach***:
 - ***IEA and IEA Bioenergy Agreement***
 - ***FAO and GBEP - Global Bioenergy Partnership***
 - ***SE4All Bioenergy Hub***
 - ***ICRAF - World Agroforestry Centre***
 - ***WBA - World Bioenergy Association***
 - ***ICA – International Cookstove Alliance***
 - ***EU Biofuels Conference and Exhibition***

IRENA Analysis

1.1 Assessing **Global Sustainable Bioenergy Potential**

- *Global Bioenergy Supply and Demand Projections for **REmap***
- ***Boosting Biofuels**: Sustainable Paths to Greater Energy Security*
- *Resource Potential for Advanced Biofuels in **Southeast Asia***

1.2 **Bioenergy Simulator and Data Tools to Identify Opportunities**

Cooperation with Partners

1.1 Assessing **Global Sustainable Bioenergy Potential**

- **Rome Workshop** on Sustainable Bioenergy Supply Chains
- **Berlin Roundtable** on Sustainable Bioenergy Supply Potential
- Brief on ***Bioenergy for Sustainable Development***

Voluntary Contributions from Germany and Japan

IRENA Analysis

1.1 Assessing **Global Sustainable Bioenergy Potential**

- *Resource Potential for Advanced Biofuels in Sub-Saharan Africa*

1.5 Bioenergy Potential from **Restoring Degraded Land**

- *Bioenergy Potential from Land Restoration Initiatives*

Cooperation with Partners

1.3 **Success Stories** in Boosting Food and Food Yields

- *Food and Fuel – Agroforestry Success Stories* (with ICRAF)

1.4 Bioenergy Potential from **Recovering Waste and Residues**

1.5 Bioenergy Potential from **Restoring Degraded Land**

- *RE Options for Land Degradation Neutrality* (with UNCCD)

1.6 **Best Practices for Sustainable Forestry**

- *Swedish Forestry – Practices for Sustainable Wood Energy*

IRENA Analysis Completed or Underway

- 2.1 *Technology Innovation Outlook for **Advanced Liquid Biofuels***
- 2.2 *Technology Pathways: Ethanol from **Agro-Processing Residues***
- 2.3 **Biogas** *Technology Assessment for Different End-Use Sectors*
 - *Technology Brief on Biomass for **Heat and Power***
 - *Technology Brief on Biofuels for **Aviation***
 - *Technology Brief on Biogas for **Road Transport***
 - *Technology Brief on Biogas **Cookstoves***
- *Technology Brief on Biomass Logistics*

Additional Work Proposed

- 2.5 *Technology Innovation Outlook for **BECCS** (BioEnergy with CCS)*
- 2.6 **Energy Cane for Biodiesel**: *Technical and Economic Potential*

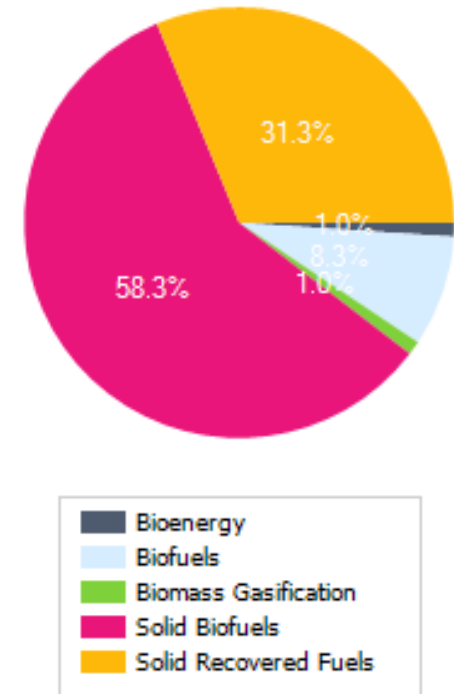
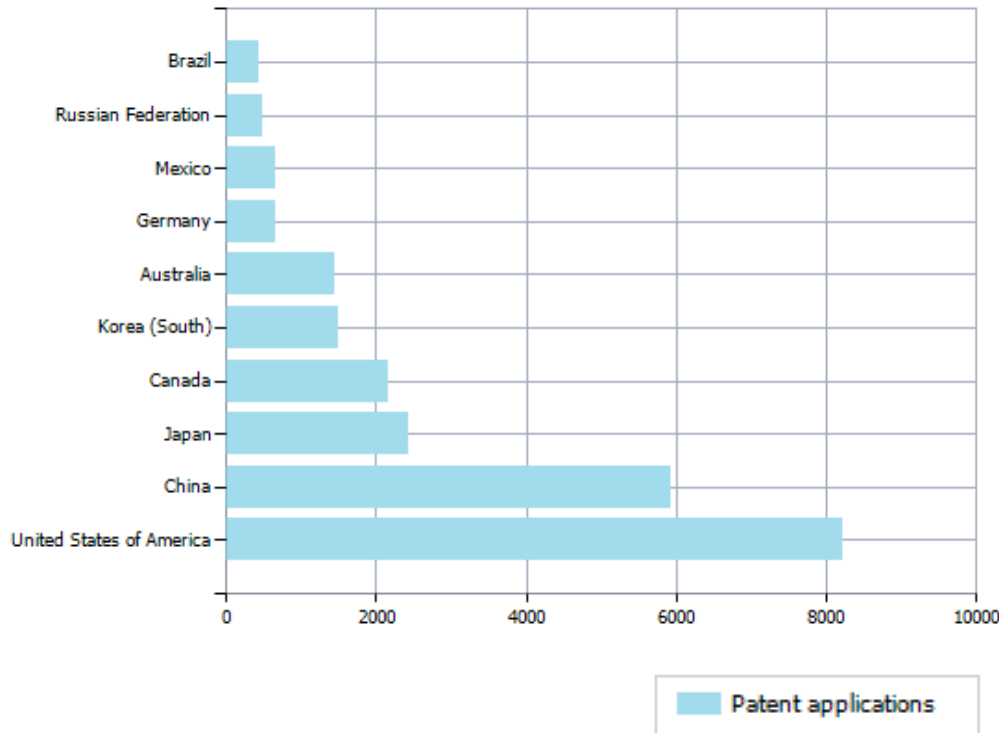
IRENA Analysis Completed or Underway

- 1.2 **Bioenergy Simulator** to Help Choose High-Yield Crops
- 3.1 **Project Navigator** for Biomass to Combined Heat and Power
- 3.2 **Forestry Biorefineries** with High Value Co-Products (Finland)

Additional Work Proposed

- 3.3 Renewable Energy Approaches to **Reducing Food Losses**
- 3.4 Turning Biomass to **Bioenergy on Islands**
- 3.5 Expanding Global Bioenergy **Markets and Trade**
- 3.6 **Country Advisory Services** for Expanding Bioenergy
 - Value Chains for Agroprocessing Residues in Africa*
 - Bioethanol in Africa: The Case for Technology Transfer*

Find Patent Trends and International Standards for Bioenergy in INSPIRE



Most active countries filing patents for biofuels over the last 10 years

INSPIRE facilitates in a simple way a catalog of the applicable standards for Bioenergy

www.irena.org/inspire

Bio-energy Sustainable Scale-up Trust (BESST)

- *Propose to Fund with Voluntary Contributions*
- *Notional budget of USD 1.0-1.5 million per year for 5 years*
 - *Three full-time staff (P-5, P4, P3)*
 - *Planning on a multi-year basis to ensure continuity*
 - *Advisory board to respond to member needs and priorities*
- *Detailed outline of current and proposed activities available*

We welcome feedback from IRENA members and partners:

- *Which projects are most worthwhile?*
- *What additional projects might be considered?*
- *What work is underway with which we should coordinate?*
 - *Planned by FAO, SE4All, IEA Bioenergy*
 - *Programmed by member countries and partners*

Opportunities for feedback:

- *Comments at Bioenergy Side Event (January 13)*
- *Meetings during Seventh Assembly (January 14-15)*
- *Written comments and follow-up (through February 15)*