

### Potential and Opportunities for Biomass Deployment

Side event at UNFCCC COP18 Doha, 1 December 2012

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### **About IRENA**

Foundation:	26 January 2009 International Agency since April 2011 The only international RE agency worldwide				
Members:	101 countries and EU; 50 ratified members; 7 applicants				
Mandate:	Sustainable deployment of all RE resources (Biomass, Geothermal, Hydro, Ocean, Solar, Wind)				
Location:	Headquarters in Abu Dhabi, United Arab Emirates Innovation and Technology Centre (IITC) in Bonn				
Staff:	Director-General Adnan Amin; about 72 staff.				



# How long will the world's oil reserves last ?



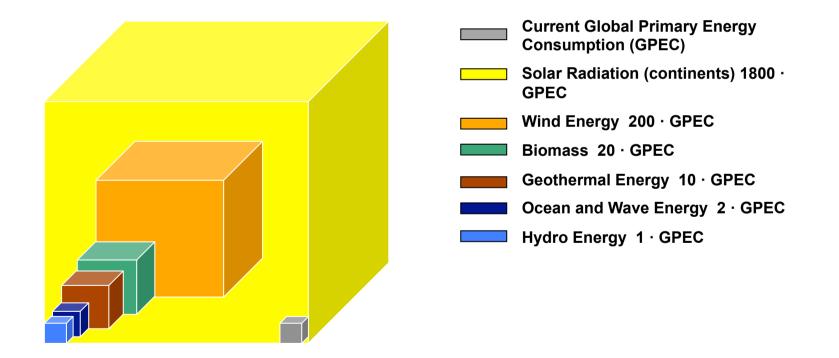
### Sheik Ahmed Zaki Yamani, former Saudi Oil Minister:

"The Stone Age didn't end for lack of stone, and the oil age will end long before the world runs out of oil."



## The various types of Renewable Energy and their potential.

### Mobilise this huge potential!



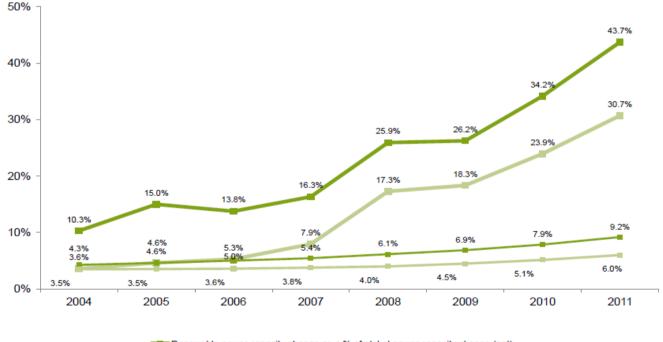
Source: Nitsch, F.: Technologische und energiewirtschaftliche Perspektiven erneuerbarer Energien. German Aerospace Center. 2007.



### How much will oil cost in 2020?



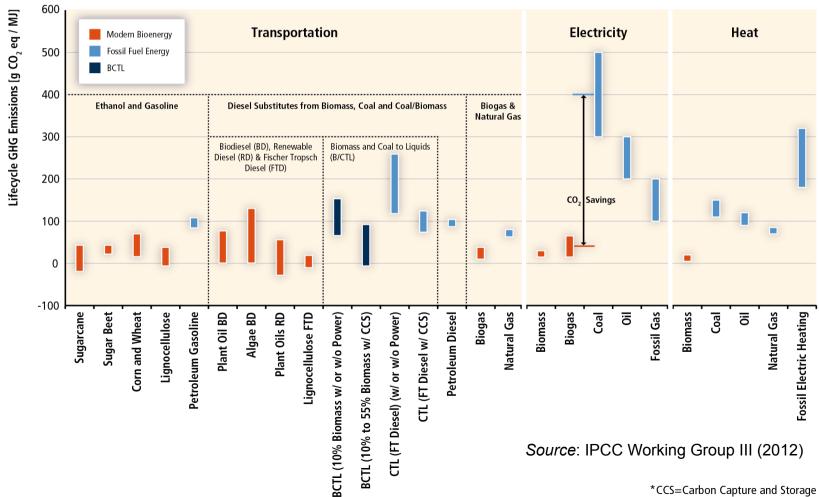
Renewables, excluding large hydro, accounted for 44% of new generation capacity added worldwide in 2011; up from 34% in 2010; and 31% of actual new power generated due to the variability of the wind and solar capacity added.



Renewable power capacity change as a % of global power capacity change (net)
Renewable power generation change as a % of global power generation change (net)
Renewable power as a % of global power capacity
Renewable power as a % of global power generation



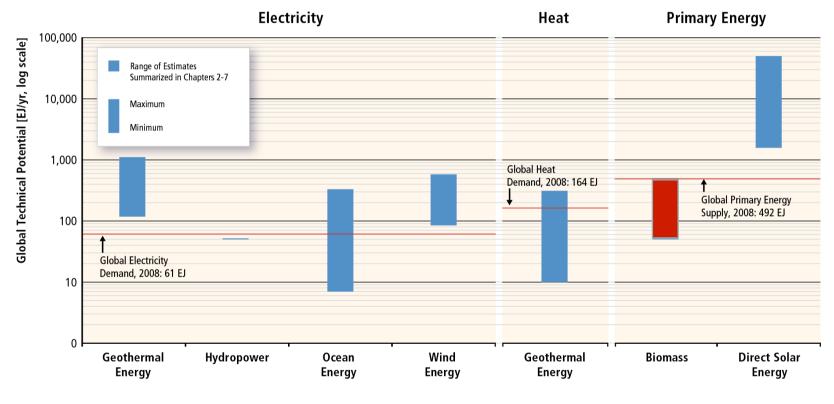
### **Contributing Factors to Global Warming**



Lifecycle GHG emissions of different energy sources



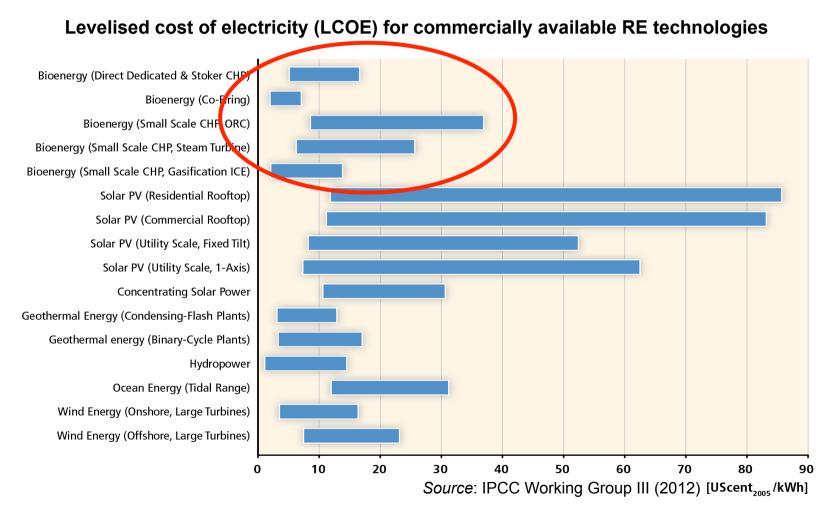
### **Potential of Biomass Use for Energy**



Max (in EJ/yr)	1109	52	331	580	312	500	49837
Min (in EJ/yr)	118	50	7	85	10	50	1575

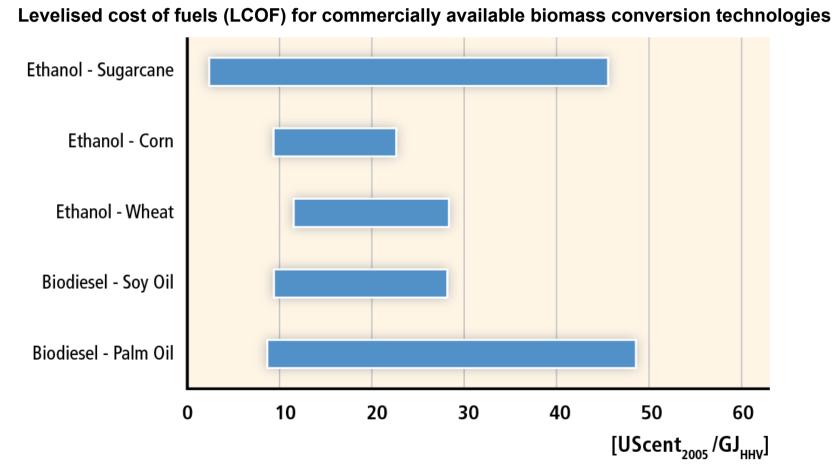


### **Current Cost of Biomass Use**



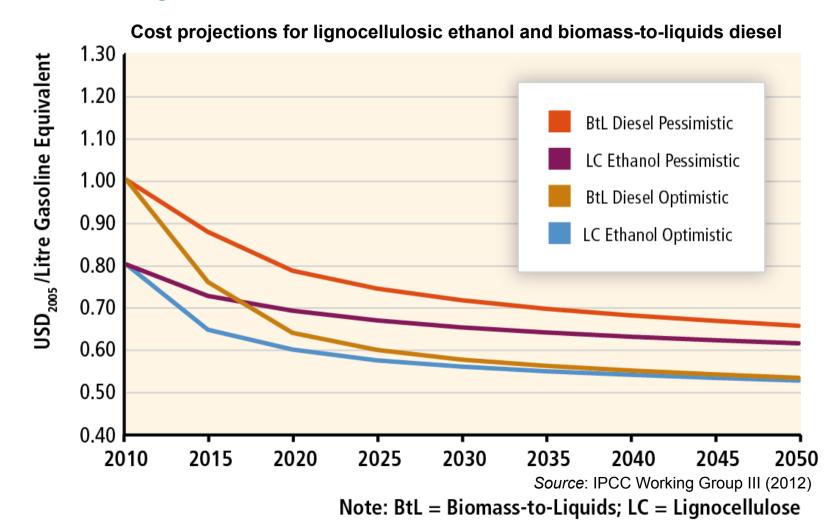


### **Current Cost of Biofuels**





### **Cost Projection of Biomass Use**





### **Potential of Biofuels for Transport**



Evolution of fuel consumption in the transport sector



### **4 Scenarios for Biomass Deployment**

#### (A1) ~ 300 EJ/Poor Governance

agriculture and livestock management

minimised using diverse and mixed cropping systems.

· Soil quality and soil carbon improve and negative biodiversity impacts are

#### Key Preconditions

- High energy demand results in high energy prices and drive strong biomass demand
- Limited oversight on biomass production and use, largely driven by market demand.
- · Fully liberalized markets for bioenergy as well as in agriculture as a whole. · Strong technology development leading to increased demand for biochemicals and advanced transport fuels from biomass.

#### Key Impacts

- · Production emphasis is on higher quality land, converted pastures, etc. Biomass produced and used in large scale operations, limiting small farmers' benefits.
- Large scale global trade and conversion capacity developed in major seaports. · Competition with conventional agriculture for the better quality land, driving
- up food prices and increasing pressure on forest resources · GHG benefits overall but sub-optimal due to significant iLUC effects.

#### (A2) ~ 100 EJ/Poor Governance

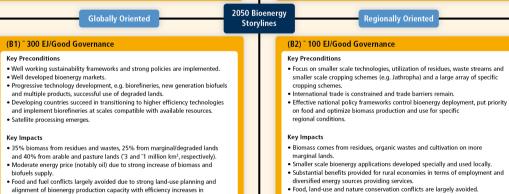
#### Key Preconditions

Material/Economic

- High fossil fuel prices expected due to high demand and limited innovation. which pushes demand for biofuels use from an energy security perspective.
- · Increased biomass demand directly affects food markets.

#### **Key Impacts**

- · Increased biomass demand partly covered by residues and wastes, partly by annual crops.
- Additional crop demand leads to significant iLUC effects and biodiversity impacts.
- Overall increased food prices linked to high oil prices.
- · Limited net GHG benefits.
- Sub-optimal socio-economic benefits.



Environment/Social

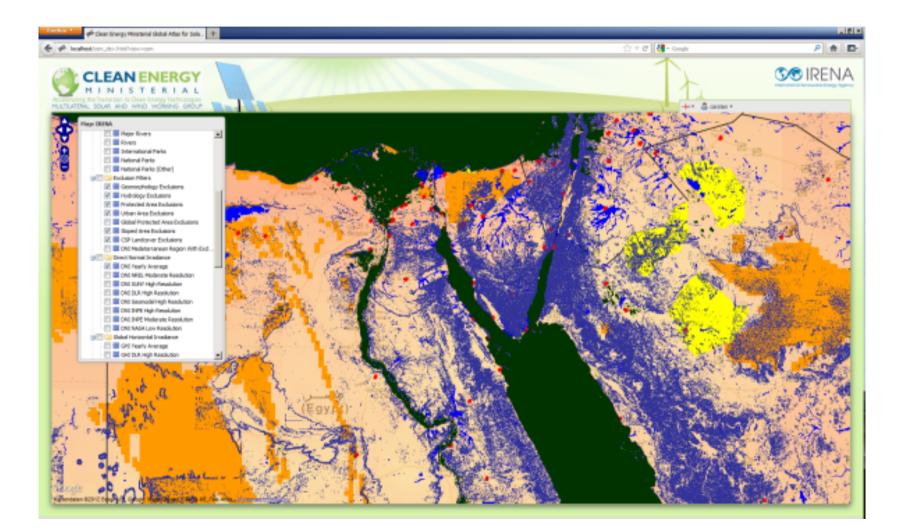
- · Substantial benefits provided for rural economies in terms of employment and
- Food, land-use and nature conservation conflicts are largely avoided. Significant GHG mitigation benefits are constrained by limited
- bioenergy deployment.
- Transport sector still uses a high share of petroleum to cover energy needs.



### **Key Issues for Considering Biomass Deployment**

- High mitigation potential from modern biomass
- Contribute to improving energy security
- Diverse applications compared to other renewables electricity, heat and transport
- The only viable green alternative in transport
- Can provide the largest small-scale business and local employment opportunities
- Water-food-energy nexus is an important consideration and there are efforts to overcome constraints by using algae, etc.



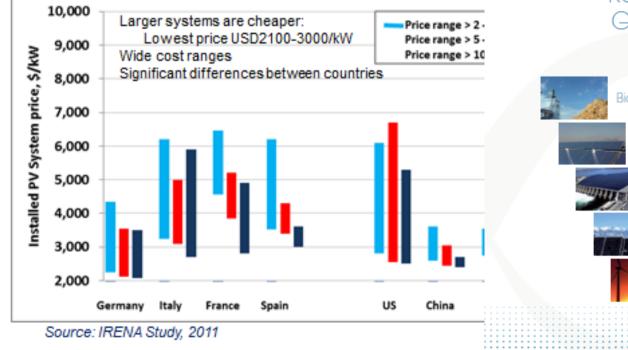








### Residential installed PV system prices, first





SUMMARY FOR POLICY MAKERS:

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### **Policy Assessment**

- RE tariffs setting
- RE targets setting
- RE Policy evaluation

### Renewable Energy Employment

 Report on Renewable Energy Employment: Analysis, Trends and Markets

### Renewable Energy Economic Value

- Analysis of economic value creation from RE
- Policy recommendation to maximize value creation
- Policy tools and case studies



IRENA Handbook on Renewable Energy Nationally Appropriate Mitigation Actions (NAMAs) for Policy Makers and Project Developers







### Objective

- Focus on scaling-up of off-grid renewables
- Identification of key barriers
- Sharing Lessons Learnt and best practices

### Participants

- 350 delegates from more than 80 countries
- 35+ Representatives from African Rural Electrification Agencies
- Speakers with experience from over 25 countries



#### www.irelp.org





### Thank You!

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