IRENA
International Renewable Energy Agency

Sectoral Roadmaps 2030: Renewables for Manufacturing Industry and Cities

IRENA Council Meeting, Abu Dhabi
6 June 2012

IRENA‘s roadmaps

IRENA Roadmap

- Many existing roadmaps
  - IEA technology roadmaps
  - Various country (US, Japan) and regional (EU) roadmaps
  - Roadmaps by industry associations

- Goal is to complement existing work and avoid duplications
  - IRENA has a sectoral approach (instead of technology approach)
  - Global reach including non-OECD countries
  - System perspective regarding renewable energy technologies
  - Emphasis on end-use sectors, starting with cities and maufacturing industry

Roadmap outline

- Present status analysis
- Formulation of vision
- Identify multiple pathways to achieve objective

- Stimulate dialogue among different stakeholders
- Identify prospects, technological barriers, financing, and development and policy needs
- Develop action agenda (Timeline, milestones, MRV system)
- Create synergies among different regional and national efforts

Current status

Renewables in Industry

- Manufacturing consumes 1/3 of final energy consumption
- Accounts for large percentage (up to 46%) of GDP in selected countries
- Industrial energy use is expected to grow with 33% to 2035, while use of renewables remains around 8-9%

- Renewable energy can be the economic solutions today
- CO2 emssions reductions will require renewables
  - Energy efficiency is important but not sufficient
  - CCS development is disappointing
  - Little attention for renewables
- Electrification with renewable power


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The potential for renewable energy in industrial applications

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ARTICLE INFO

ABSTRACT

Brussels workshop

IRENA
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Workshop output

- Technology options:
  - Waste and drop-in feedstocks (‘12-’20), Dedicated crops (‘20-’30), Algae (‘30 –)
- Opportunities and barriers:
  - Oil and gas
  - Regional specificity
- Action items:
  - R&D along supply chain
  - Cascading use of biomass / Waste regulation /Trade barriers
  - Labelling (inclusion of externalities) / education

Renewables in Cities

- Cities account for 75% of global final energy consumption
- Cities not only adapt to climate change, they can actively manage their energy use
- A unique level of policy and decision makers

- In certain applications and locations renewable energy is the most economic solution today
- Significant CO_2 reduction worldwide will also require reductions in cities
  - Energy efficiency is a priority
  - Renewables have not yet received a lot of attention

Bonn workshop

Workshop output

- Renewable energy goes hand in hand with energy efficiency
- Need for data on energy use, especially small- and medium-size towns in developing countries
- Consider key role of technology in context of regional differences

- Monitoring, reporting and verification of ‘sustainability’ of renewable energy
- Creation of innovative finance mechanisms
- Focus on enabling factors for renewable energy
  - What key factors can city governments/governments/suppliers influence?

IRENA smart grids and storage roadmap

- Project for 2012-2013
- Goal of this roadmap is to assess how enabling technologies can be applied for higher shares of renewable power
- Experience so far shows that in many cases high shares (25%+) can be reached without operational problems (eg Spain)
  - Dependent on supply and demand characteristics
  - Even higher shares will require additional measures incl. smart grids
- Developed and developing countries
- Special attention for islands

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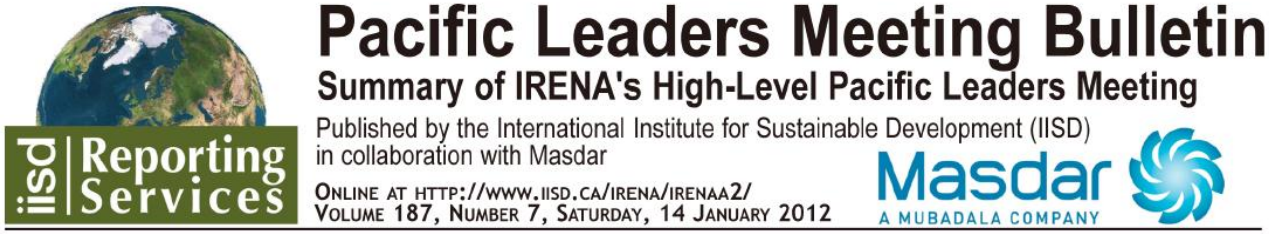
Regional and country roadmaps

- Engagement in Tonga roadmap
- Request for Nauru roadmap
- Need for Pacific roadmap

His Majesty's Government of the Kingdom of Tonga

TONGA ENERGY ROAD MAP
2010 - 2020

A TEN YEAR ROAD MAP TO REDUCE TONGA'S VULNERABILITY TO OIL PRICE SHOCKS AND ACHIEVE AN INCREASE IN QUALITY ACCESS TO MODERN ENERGY SERVICES IN AN ENVIRONMENTALLY SUSTAINABLE MANNER



Future direction

Value of curent approach

- End-use applications
- Global
- Systemic view of renewable energy technologies

- Global renewable energy roadmap
  - Sectoral roadmaps (cross cutting)
  - Input from technology briefs
  - Input from regional scenarios and strategies

Future direction of roadmaps?

- New sectoral roadmaps (cross cutting)
  - Agriculture
  - Tourism
  - RE solutions for traditional biomass

- Regional and country roadmaps
  - Framework
  - Country engagements

Thank you !

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