

IAEA's Tools and Capacity Building for Energy Planning in Africa

IRENA-ECREEE Workshop on Energy Planning

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Mario TOT

Planning and Economic Studies Section

Department of Nuclear Energy



IAEA

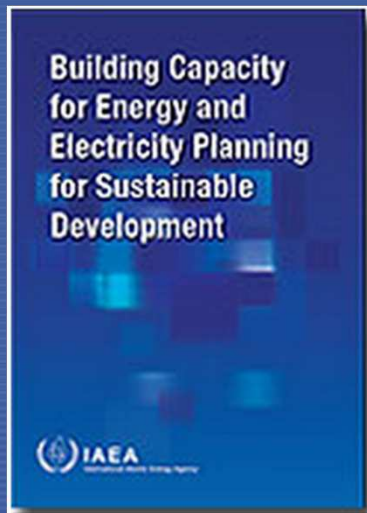
International Atomic Energy Agency

Planning of Provision of Energy Services...

- ... requires careful and timely assessment of *all energy supply and demand options*, selection of suitable energy portfolio and designing of energy strategies consistent with the national sustainable development objectives

IAEA...

- ... *assists* countries to build national capacity and expertise in energy system analysis and planning, so that *countries are able to chart out their own* national energy strategies



IAEA 's Energy Assessment Tools

MAED

Energy Demand
Analysis

MESSAGE

Energy Supply
Optimisation

WASP

Power Generation
Expansion

FINPLAN

Financial Analysis
of Energy Plans

SIMPACTS

Environmental
Impacts

EBS

Energy Statistics
and Balances

ISED

Sustainability
Indicators

IAEA's Capacity Building

- Transfer tools to and train local experts
- Distance learning and hands-on training
- Expert missions and fellowships
- Online support to the users

- Technical guidance and assistance in conducting national studies
- Support institutions building for energy planning

- Multilingual user interface tools and eLearning
- Model updates
- Teachers' trainings

Capacity Building for Africa

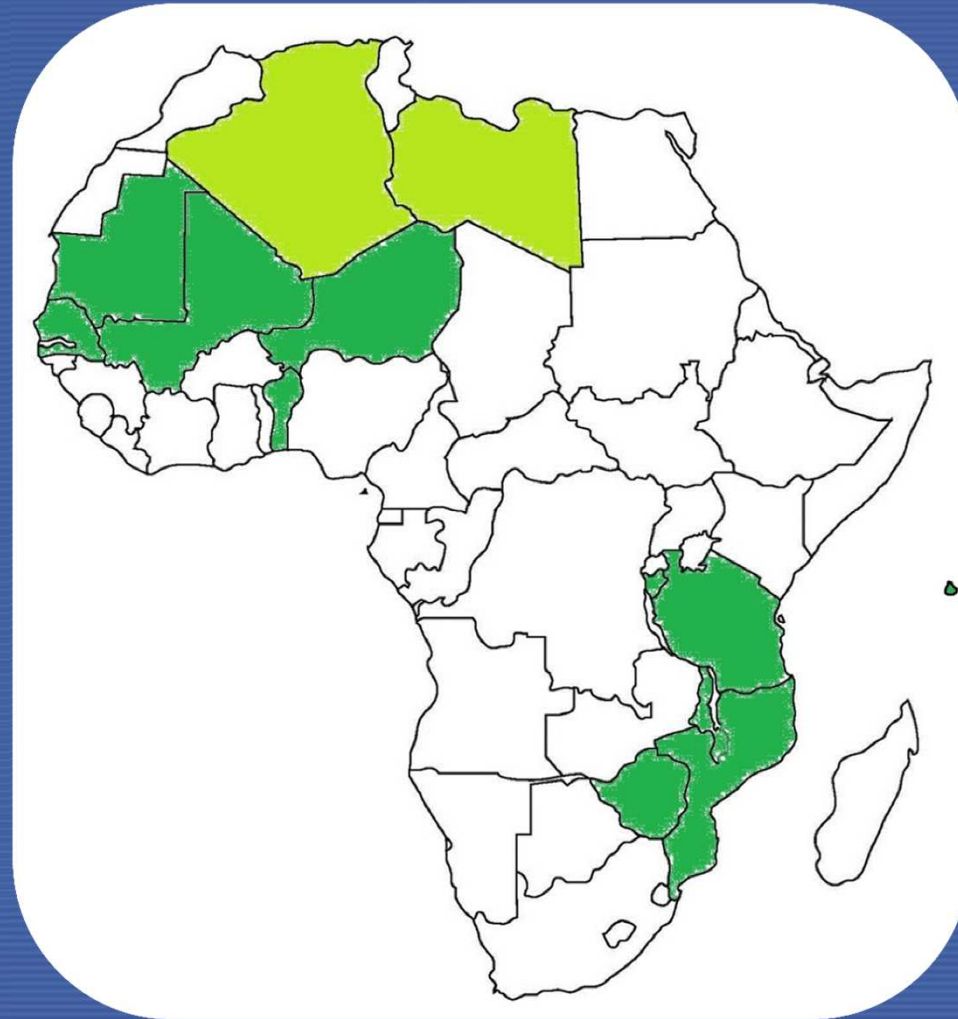


National
Projects

Trainings
Expert Missions
Fellowships
Scientific Visits
National Workshops

Regional
(AFRA) Project

Current National Projects on Energy Planning



IAEA - AFRA Cooperation

- Energy is one of the priority areas in AFRA programme
- IAEA supports AFRA objectives and provides technical assistance through regional projects on capacity building for energy analysis and planning in Africa

IAEA - AFRA Regional Projects

- 2007 - 2011
 - Strengthening Planning Capabilities for Sustainable Energy Development
- 2012 - 2015
 - Planning for Sustainable Energy Development
- Evaluation of energy opportunities at regional level
- Strengthening regional integration
- Accessibility and affordability of energy, security of supply and environmental protection
- Provide tools to improve and support regional cooperation and decision making

Impact of IAEA - AFRA Activities...

- **Burkina Faso**
 - "The project allowed the General Directorate of Energy to have a study completed on the feasibility of the diversification of the sources of energy"
- **Mali**
 - "Knowledge of energy planning and the tools used were increased"
- **Senegal**
 - "The project has provided an aid to decision-making in energy policy"
- ...

Project Scientific Consultant

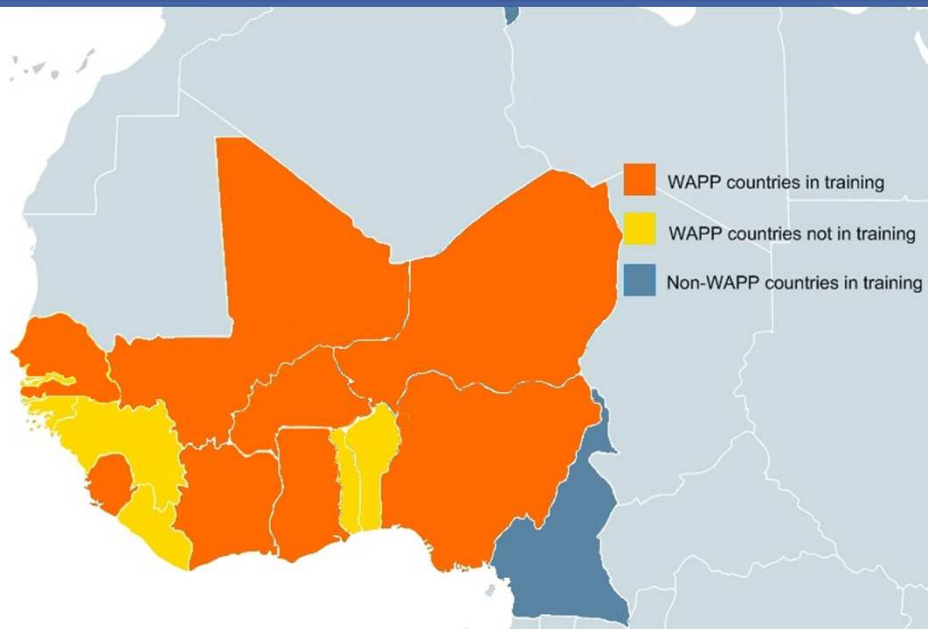
Assessment of IAEA - AFRA Activities

"It is apparent ... that ... the project has made a significant impact in the area of energy planning ... and energy plans have been produced with the aid of the IAEA's models.

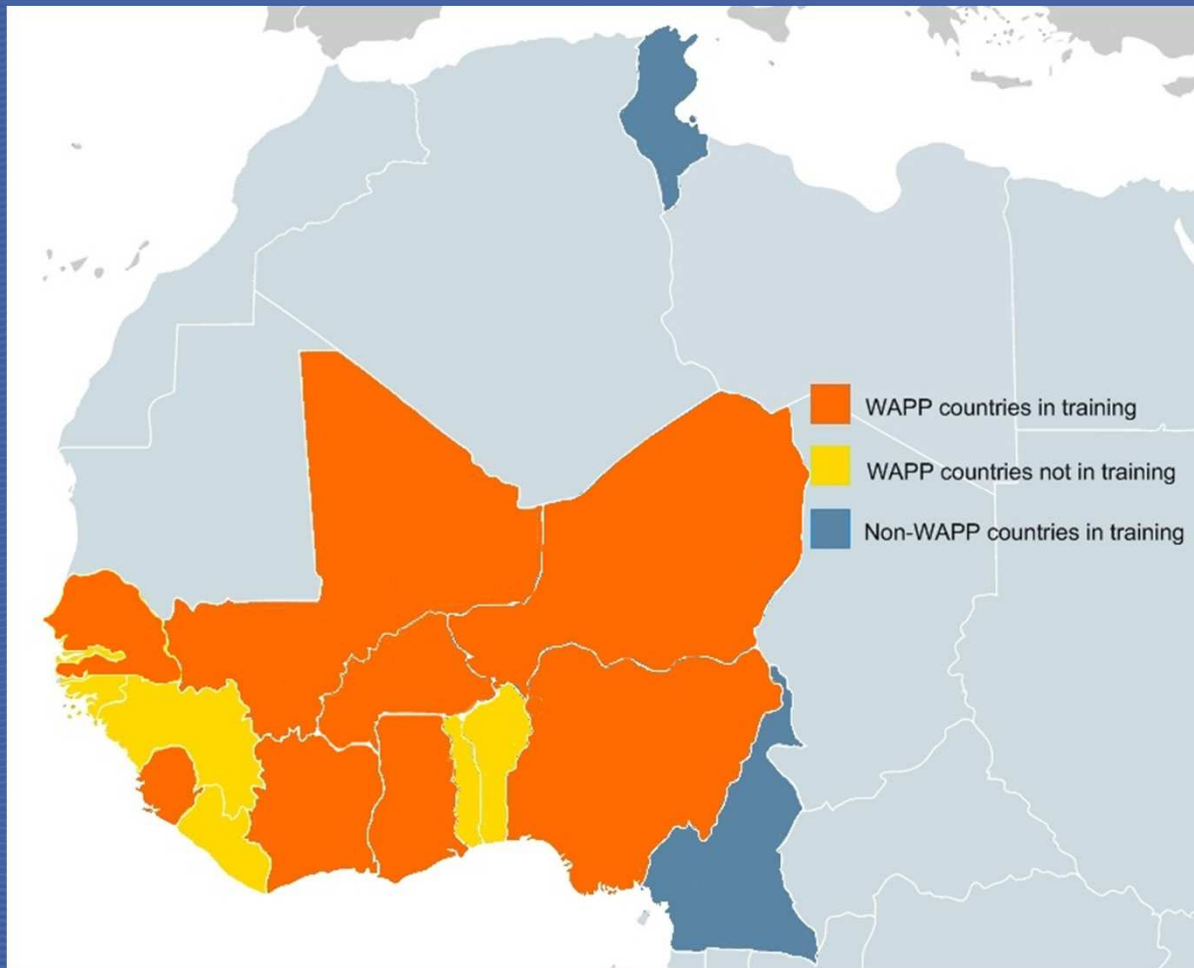
Increasingly, senior government officials are realizing that these models are aids ... to support their proposed energy policies."

IAEA - AFRA Project Activities

- Developed Models of Electricity Pools using IAEA's energy systems assessment tool MESSAGE



Main WAPP numbers



- 276 mil. inhabitants
- 10 GW installed power
- 65 TWh generation
- 50 TWh consumption
- Nigeria largest system
- Large potential to develop hydro resources
- Power pool in operation

Countries in training

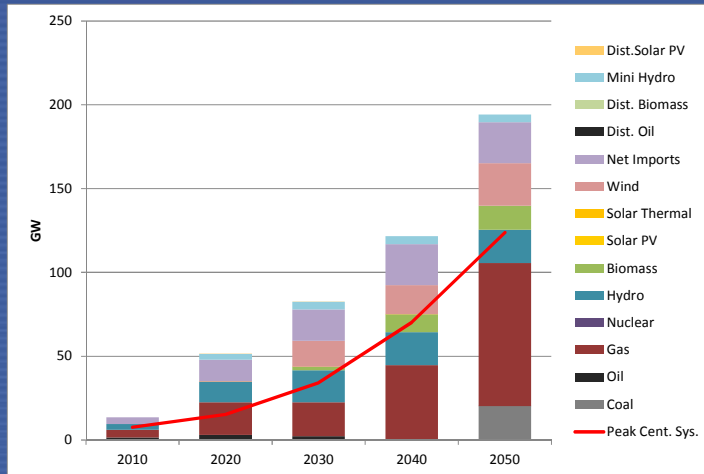
- Burkina Faso
- Benin
- Togo
- Cote d'Ivoire
- Ghana
- Mali
- Nigeria
- Senegal
- Liberia
- Gambia
- Guinea
- Guinea-Bissau
- Sierra Leone
- Niger



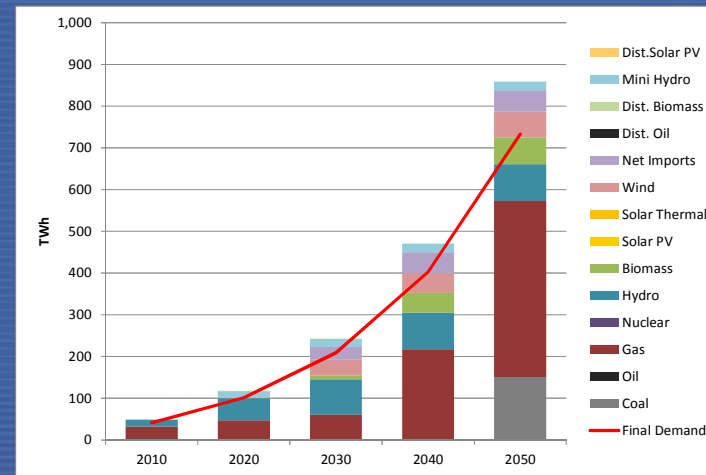
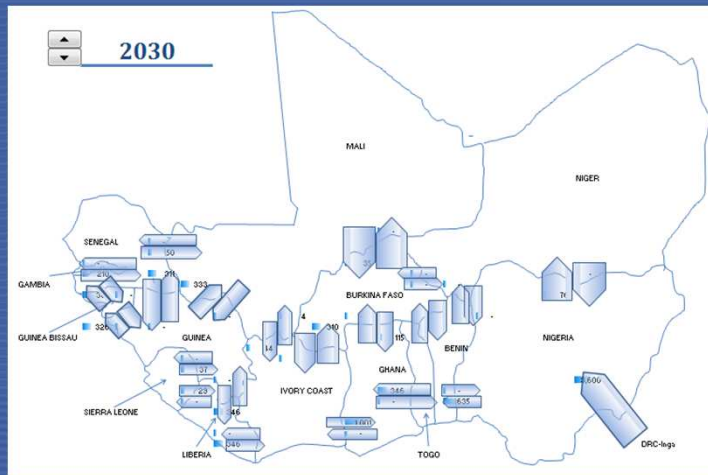
- Tunisia
- Cameroon



WAPP Area Model and Training



- eLearning training
- Face-to-face training
- Input data, user manual and model available to all project counterparts
- Continuous support available



Planned IAEA-AFRA Activities for 2013

- Coordination among project counterparts for WAPP and SAPP areas
- Energy statistics and balances trainings in cooperation with AFRE
- Teachers' trainings in energy demand analysis
- Development of sub-regional models for other African areas
- Training for small/isolated systems

IAEA

- Develops tools for energy system assessments
- Provides capacity building in energy planning and assists countries in building national and regional expertise in energy system analysis
- Partners and cooperates with other international organisations and initiatives

Way Forward?

- Energy needs are increasing
- Difficulties in providing energy services are enormous
- Timely planning activities have to ***consider all energy supply and demand options***
- Regional cooperation brings benefits to all parties concerned
- IAEA offers analytical framework, continuous capacity building and support for energy systems assessments and development of regional and national energy strategies, plans and actions

IAEA



... atoms for peace.