The Abdus Salam
International Centre for Theoretical Physics

United Nations
Educational, Scientific and
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IAEA
International Atomic Energy Agency

2242-2

Joint ICTP-IAEA Workshop on Uncovering Sustainable Development CLEWS; Modelling Climate, Land-use, Energy and Water (CLEW) Interactions

30 May - 3 June, 2011

Introduction to related activities in IAEA - PESS

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Joint ICTP-IAEA Workshop on

Uncovering Sustainable Development CLEWS: Modelling Climate, Land-use, Energy and Water (CLEW) Interactions

Selected related IAEA-PESS [Planning and Economic Studies Section] Activities

Mark Howells
IAEA, Nuclear Energy Department
Planning and Economic Studies Section

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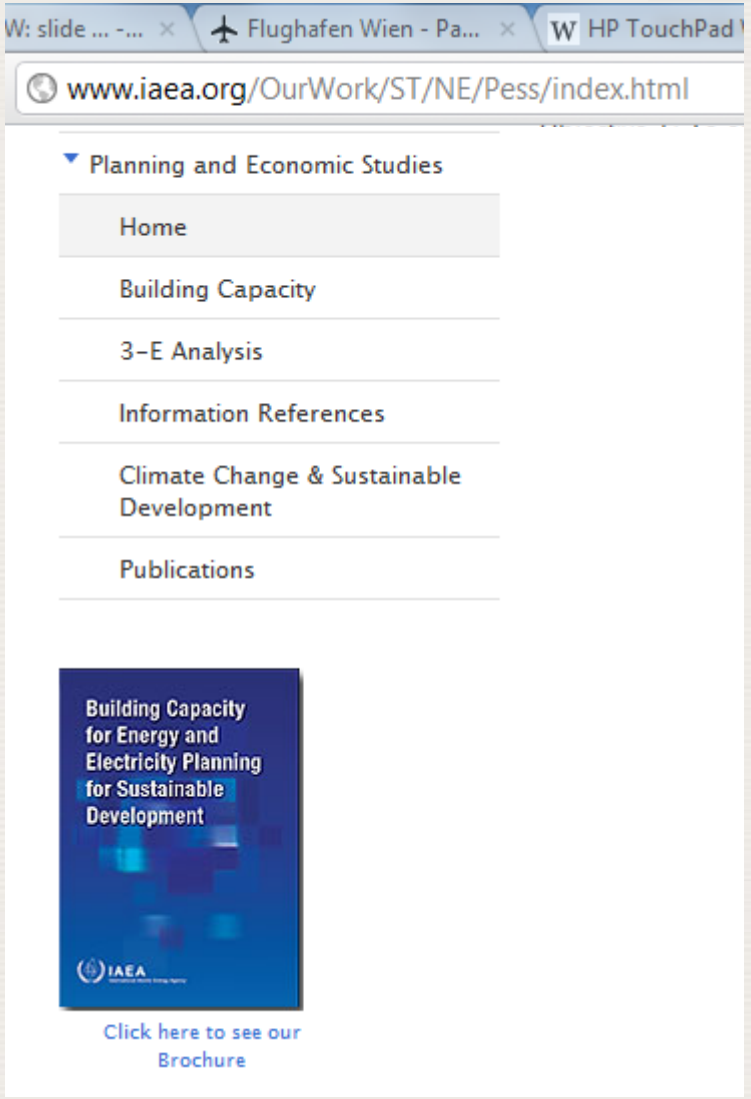
International Atomic Energy Agency

Our website …

http://www.iaea.org/OurWork/ST/NE/Pess/index.html

- Information
- Reports
- Statistics
- Presentations
- And more
- Etc..



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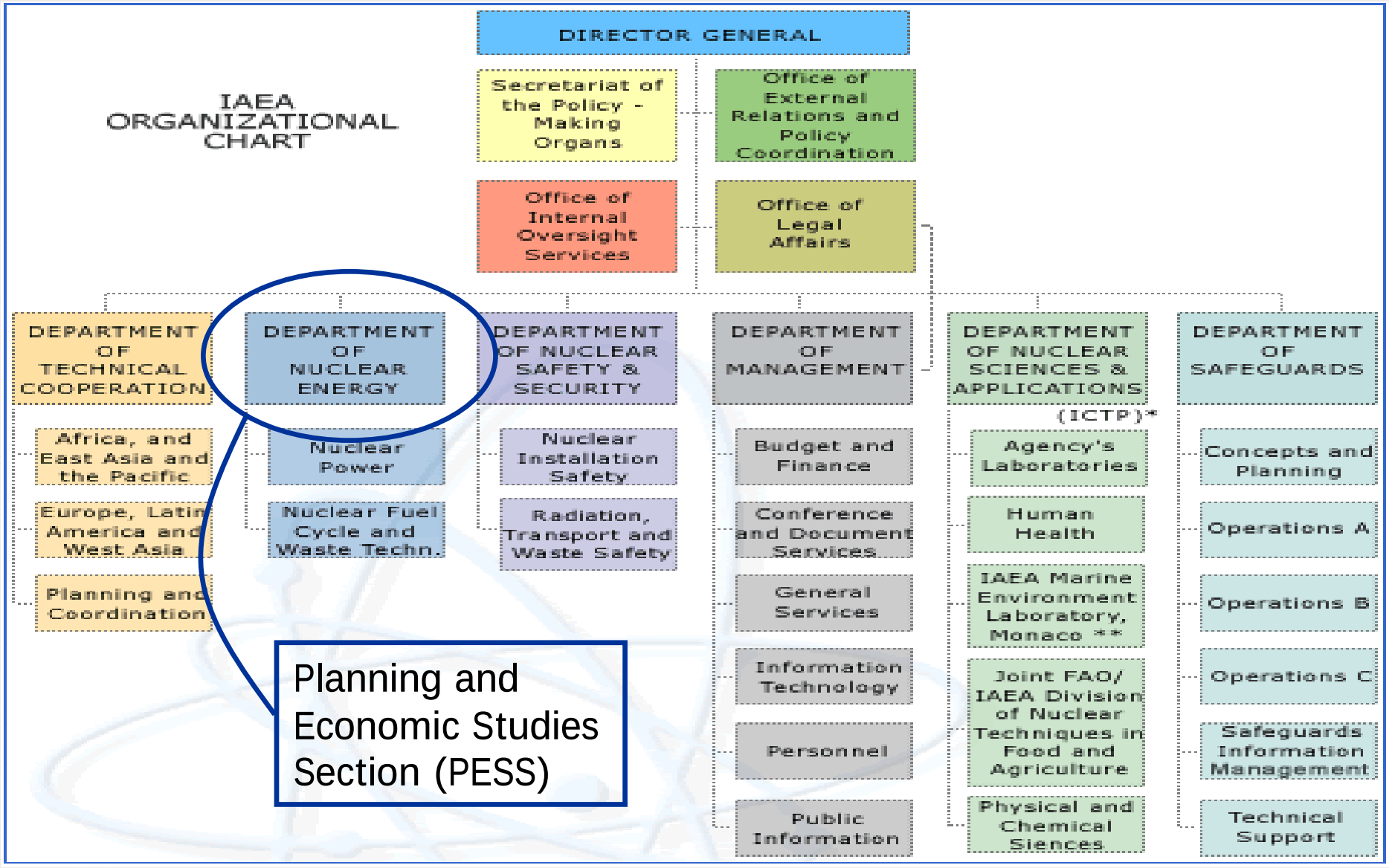
Structure of the IAEA



Mission

The IAEA, through its Planning and Economic Studies Section, assists Member States to build their capacity

- to perform analysis for developing alternative strategies for sustainable energy development,
- to evaluate related energy-economic-environmental implications, and
- to assess the potential contribution of nuclear energy in securing affordable and clean supplies of energy

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Energy modelling & capacity building

- Develop and transfer planning tools tailored to circumstances in developing countries
- Train local experts
- Jointly analyze national options and interpret results
- Help establish institutional set up for continued local planning activities
- Assist in studies done by countries

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Energy choices

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IAEA energy analysis tools

- **M**odel for the **A**nalysis of **E**nergy **D**emand

- **W**ien **A**utomatic **S**ystem **P**lanning Package

- **M**odel for **E**nergy **S**upply **S**ystem **A**lternatives and their **G**eneral **E**nvironmental impacts

- **Fin**ancial Analysis of Electric Sector Expansion **Plan**s

- **Simp**lified Approach for Estimating **Impacts** of Electricity Generation

- **E**nergy **I**ndicators for **S**ustainable **D**evelopment

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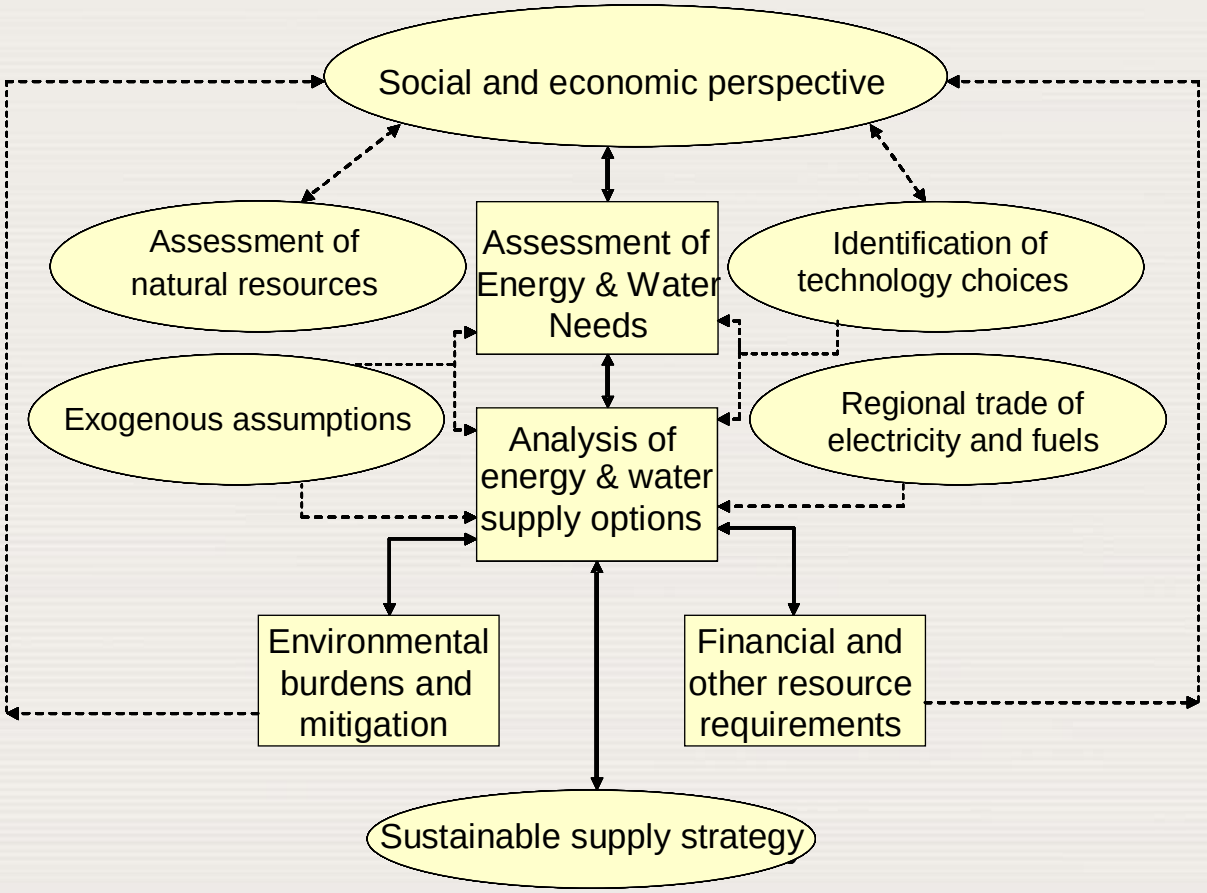
Analytical framework



MAED

WASP

MESSAGE

FINPLAN

SIMPACTS

EISD

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Examples of analysis

- Electricity expansion
- Energy expansion
- Technology appraisal
- Policy appraisal
- GHG Mitigation
- Geopolitical considerations
- Multi-resource analysis
- Etc..

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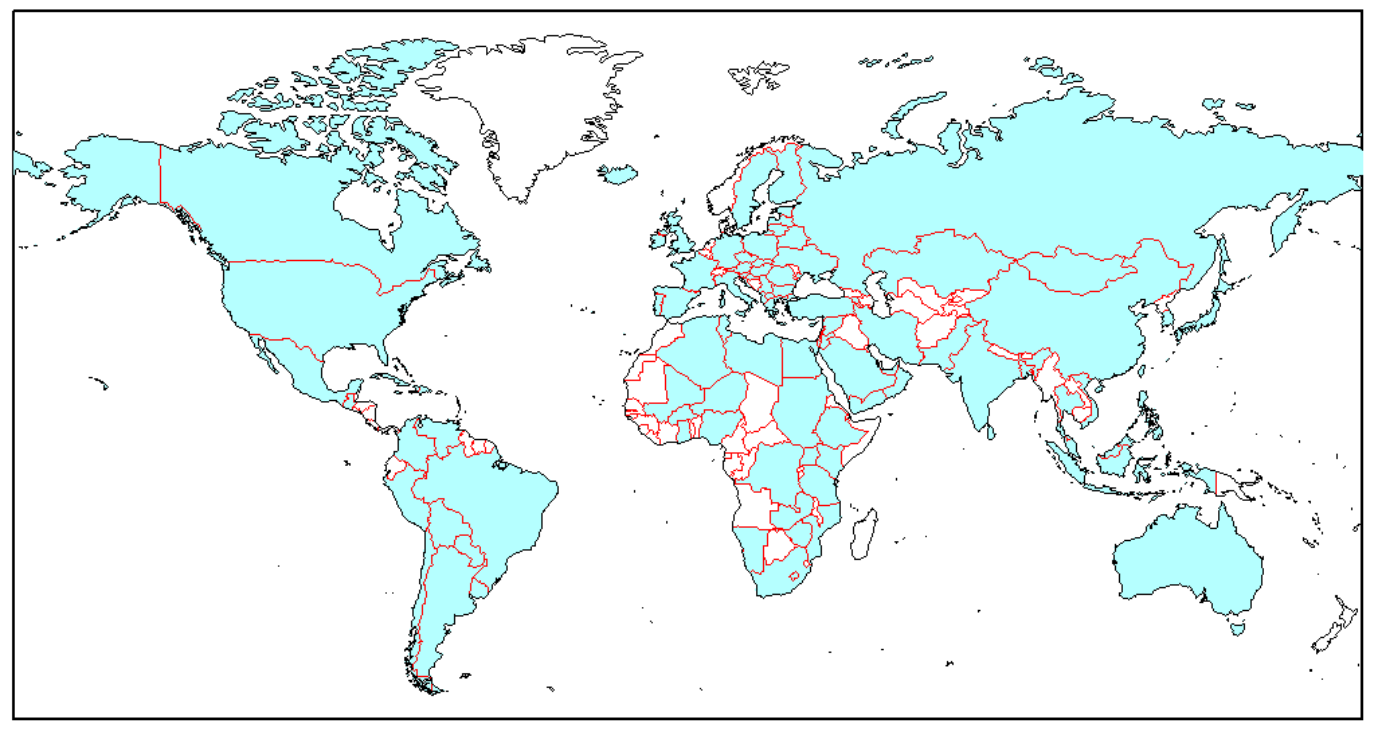
Energy Models Dissemination



120 countries (majority regular users)

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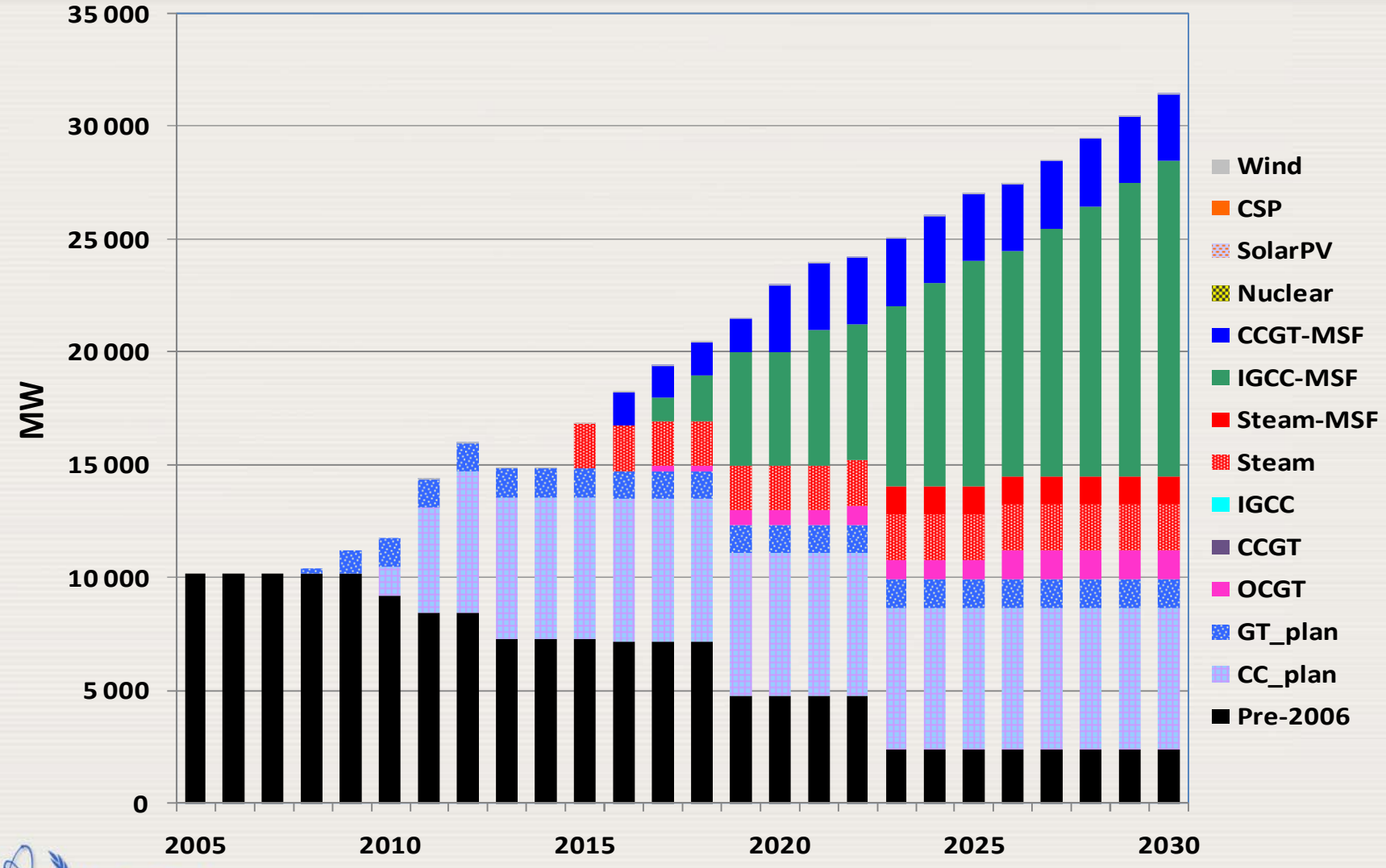
An example: Multi-resource analysis
Supplying electricity and water (with limited flexibility)



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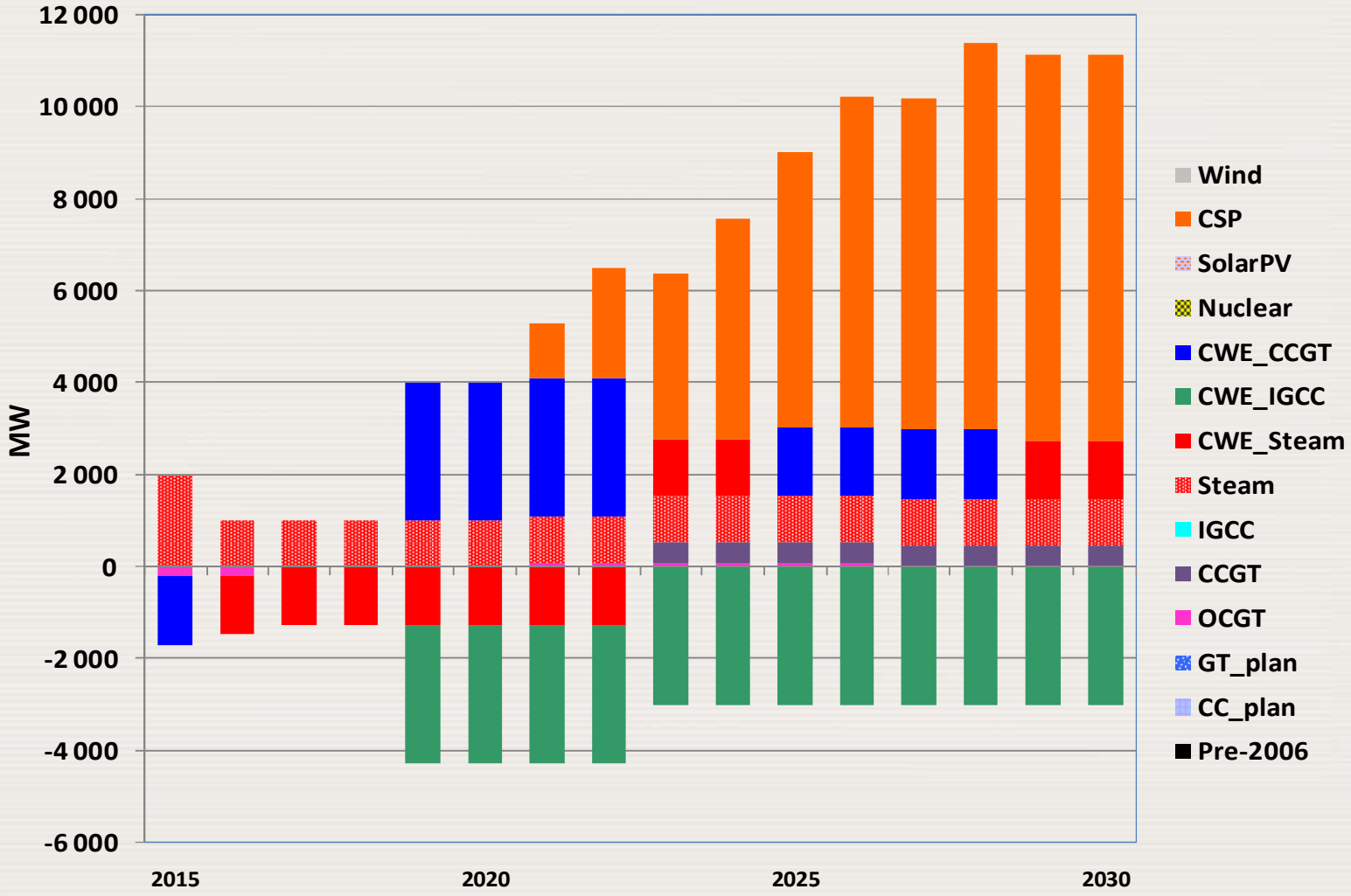
An example: Multi-resource analysis

Adding reverse osmosis water production technology



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Training and technical assistance

Mainly provided under TC projects

- Inter-regional, regional and national training courses
- Fellowships
- Follow up missions

But also through other channels(such as tele-support system)

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National TC projects

- Initiated by individual Member States
- Address priority issues for national development
- Help establish systematic planning for energy sector development

Some National Projects in 2007-2008

Belarus; Haiti; Jordan; Mexico; Thailand, Tunisia

Ten National Projects in 2007-2008 in Africa

Algeria, Botswana, Burkina Faso, Chad, Ghana, Ivory Coast , Mauritania, Niger, Sudan

Four New National Projects in 2009-2011 in Africa

Malawi, Botswana, Burkina Faso, South Africa

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Regional TC projects

- Programs and activities are established in the AFRA coordinators meting
- Address issues of common interest in the region
- Solve similar problems by exploiting the benefits of synergy
  - **Africa**: Strengthen planning capacities for sustainable energy development
  - **Africa**: Increasing awareness at decision making level about the requirements and challenges related to the desirability of a nuclear power program
  - **Latin America**: Building capacity for the development of sustainable energy
  - **Arab Asia**: Planning and Developing Nuclear Power

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Project impacts

- Directly influenced the decision making on the national long-term electricity planning and the role of nuclear power
  (China, Korea, Lithuania, India, Indonesia, Pakistan and Vietnam)
- Provided support for establishing systematic national electricity planning
  (Bangladesh, Malaysia, the Philippines, Poland, Romania and Sri Lanka)
- Provided the planning skills, knowledge, expertise to help the management of electricity/energy and environmental authorities
  (All Member States)

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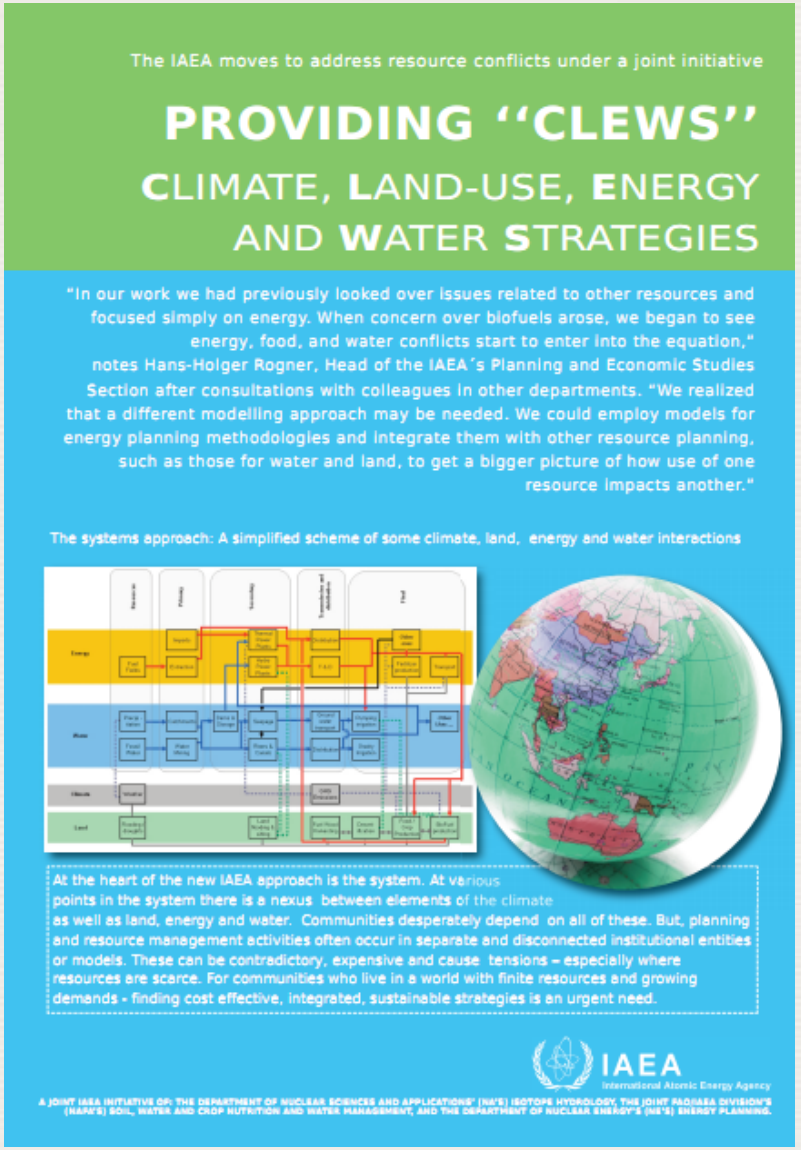
New directions – CLEWS: Climate Land Energy Water Strategies

- 7 academic papers
- Started in 2009
- Side events at 3 CSDs
- One PhD being supported
- Coordinated IAEA research project
- Active collaboration with several key analytical groups
- Development of case studies



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New directions – CLEWS: Climate Land Energy Water Strategies

Water, energy and food are required for survival and development but they are also integrated. A framework is thus needed to aid:

- Decision making - transparently evaluate the trade-offs reflected in different options.
- Policy assessments - provide a more complete, multi-system policy assessment.
- Facilitating policy harmonization and integration - help harmonize potentially conflicting policies.
- Technology assessments - allow a more inclusive assessment of technological options.
- Scenario development - elaborate consistent scenarios of possible socio-economic development trajectories
- Identifying synergies - considering the multiple benefits of each option will yield better estimates of the overall development potential of each.

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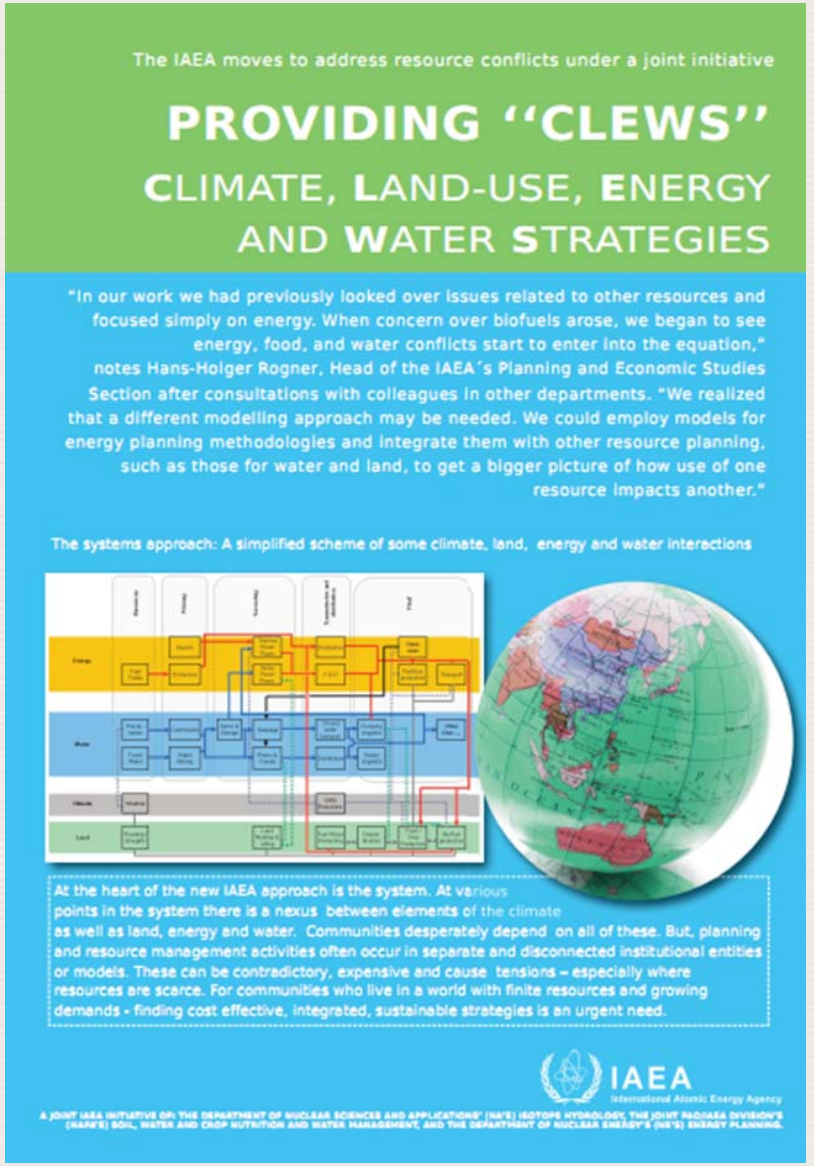
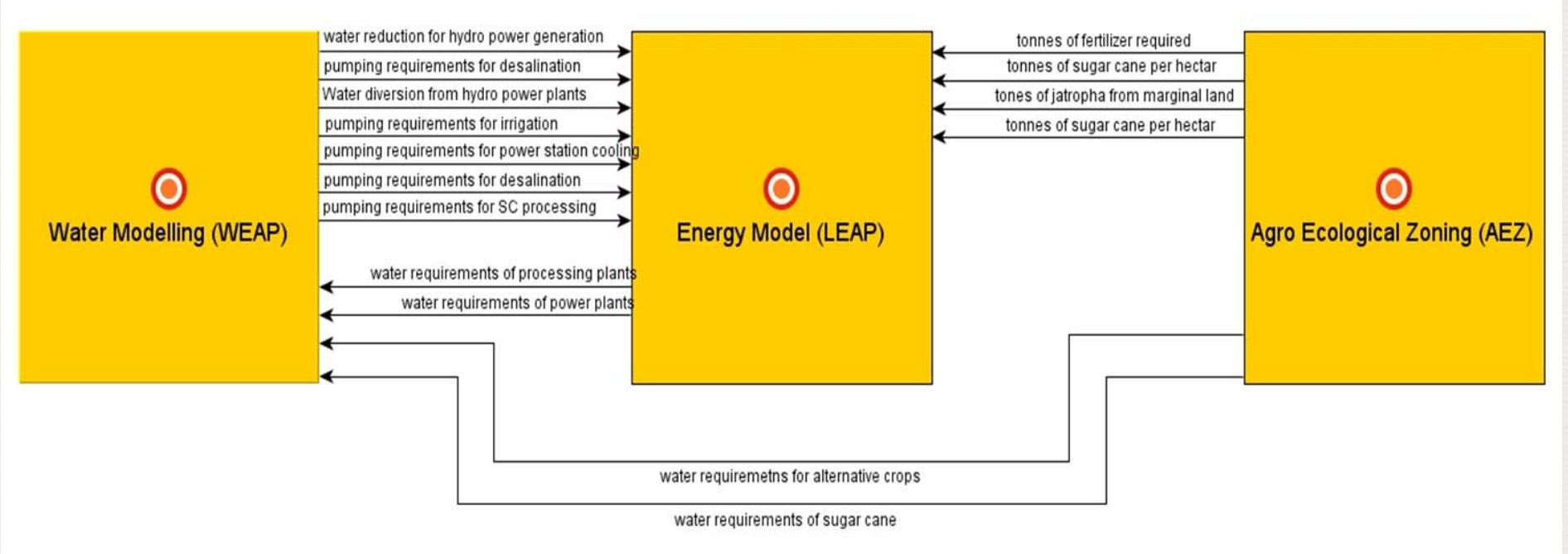


New directions – CLEWS: Climate Land Energy Water Strategies



- Application of a toolkit in a consistent framework
- Development of a ‘toolkit’
- Eventual multi-agency support

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Ps: CRP Info

- Coordinate research project:
  - If interested please get a form (see Sebastian)
  - Submit it and;
  - Contact the IAEA-PESS section head:
    - Holger Rogner: *h.h.rogner@iaea.org*

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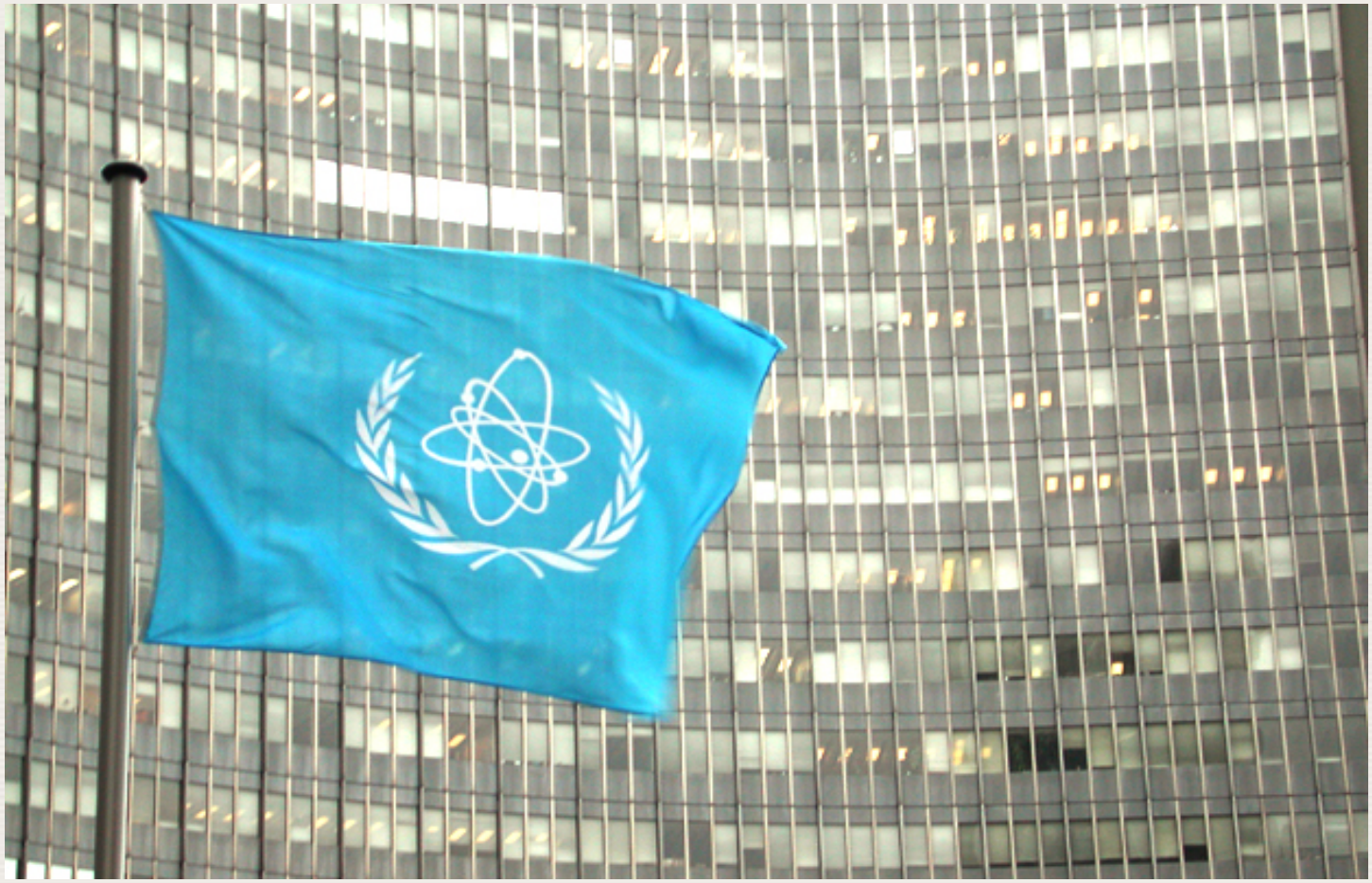

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…atoms for peace.