

2<sup>nd</sup> ASEAN Workshop on Nuclear Power Safety Research

7-9 March 2017, Dusit Thani Hotel, Bangkok , Thailand

# Country report on Nuclear Power Safety Research,

Presented by : Mr. Houmpheng THEUAMBOUNMY  
Renewable Energy and New Materials Institute,  
Ministry of Science and Technology

# Content

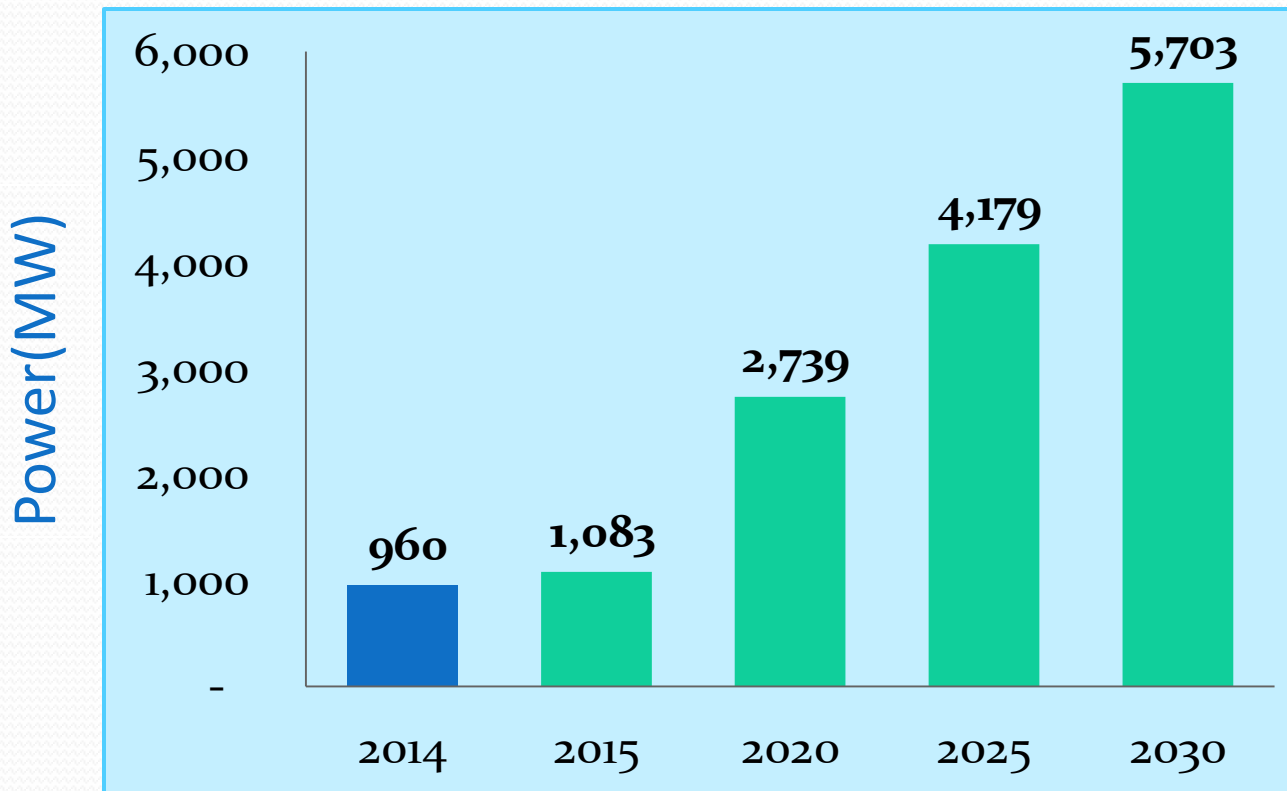
- Country overview
- Country research activities in the field of nuclear power safety
- Country needs regarding nuclear power safety research
- Proposal for benchmark problems and/or research collaborations.

# Country's Basic Information

- Area : 236,800 km<sup>2</sup>
- Population 2015
  - Total 6.5 millions (27 person/km<sup>2</sup>)
- Total Share of GDP 2015
  - GDP per Capita 1,947 US\$
  - Growth rate of GDP: 7.56%
- Share of GDP 2015
  - Agricultural: 21.80%
  - Industry: 32.70%
  - Services: 35.95%
  - Taxes on products and Import duties, net: 9.55%

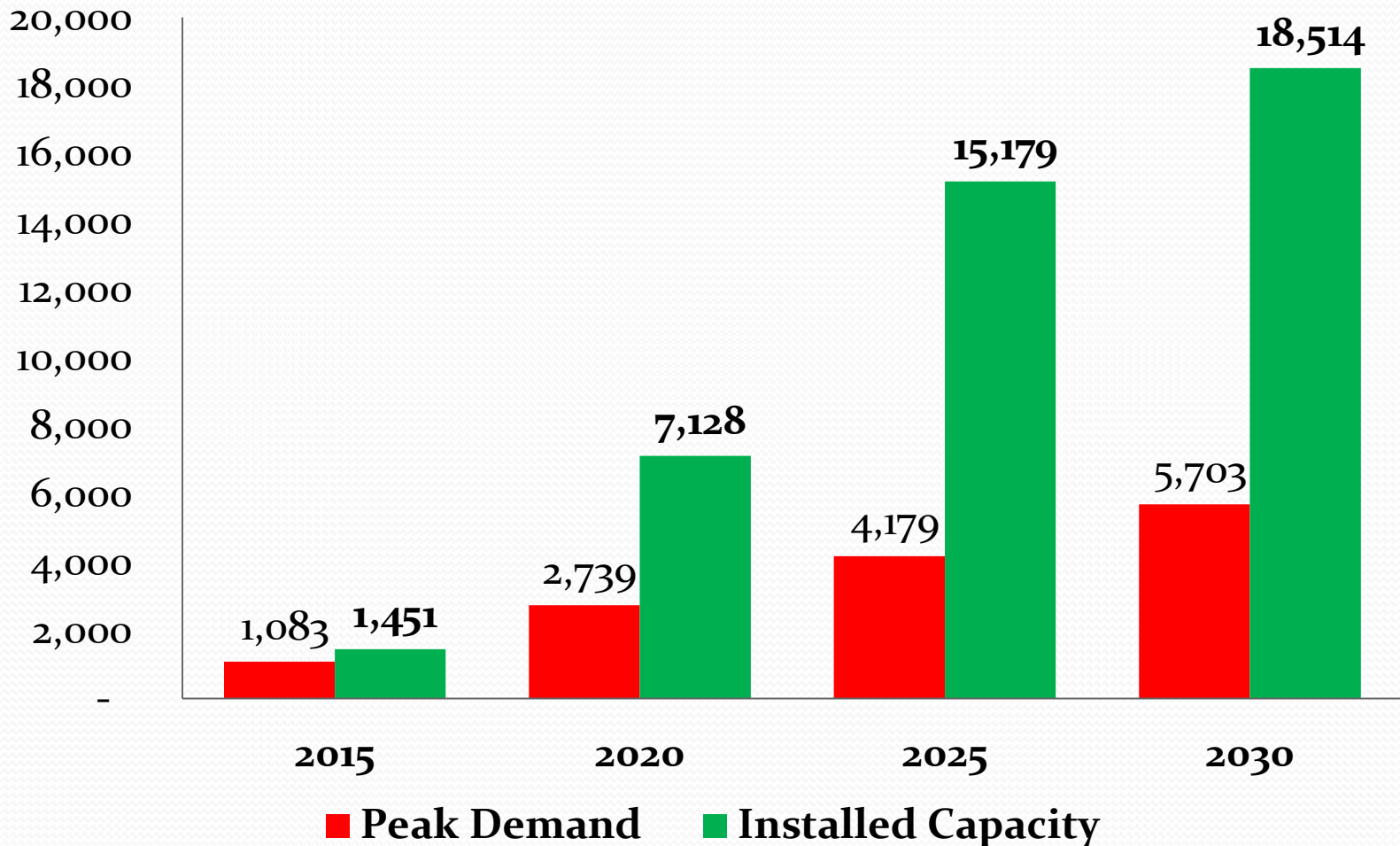


# Power Demand Projection



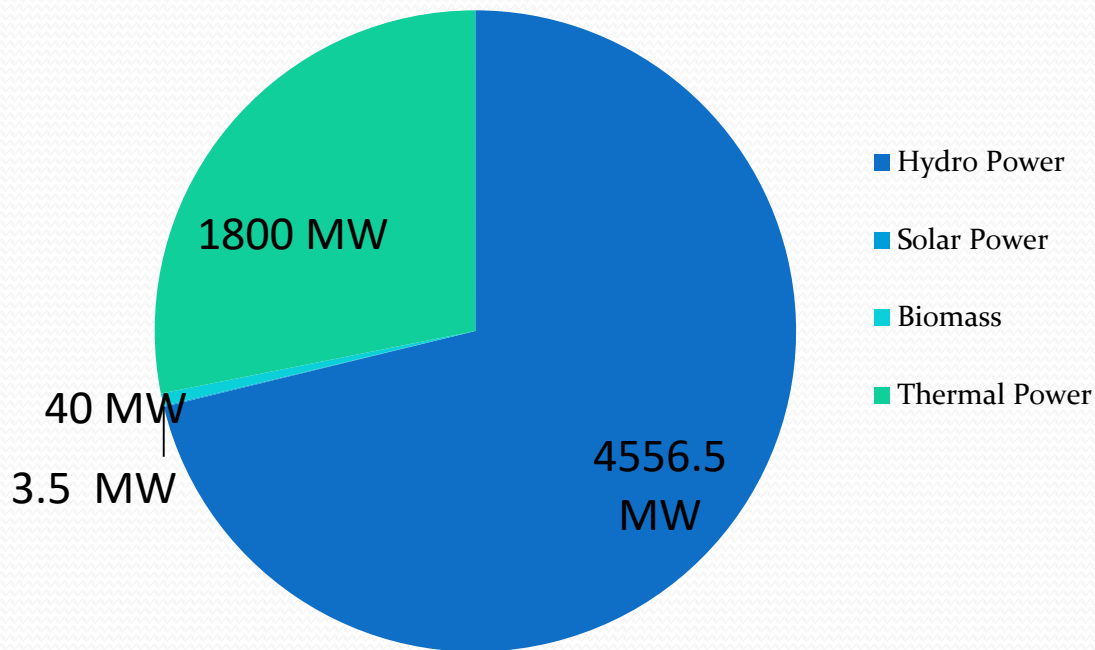
Peak demand in MW is expected to grow at 12% per year

# Installed capacities (to be developed) versus projected peak demands in MW



# Power generation Share

Total Install Capacity 6,400 MW, 44 Project



Over 70% from hydropower , not stable in dry season

Thermal power is option to keep stable supply

# Nuclear power



- Signed a Memorandum of cooperation in **nuclear energy for peaceful propose** (14/4/2016) by Russian state nuclear cooperation (Rosatom) and Ministry of Energy and Mines of Laos.

In the framework of the memorandum: **plan** to cooperate in the design, construction and operation of nuclear power plants and research reactors. **plan** to cooperate in basic and applied research; nuclear and radiation safety; research and development in the field of nuclear medicine technology; and in education and training.

# Peaceful use of nuclear technology

- Convention on the Physical Protection of Nuclear Material- CPPNM in 2010.
- A member of IAEA in 2011
- Concluded the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency in 2013,
- Signed the IAEA Additional Protocol in November 2014.
- Joined the Regional Cooperative Agreement on 16 /3/2015.
- Engaged in regional nuclear cooperation and has concluded the South East Asia Nuclear Weapons Free Zone Treaty (SEANWFZ).
- Participated in activities of the ASEAN Network of Nuclear Regulation Bodies on Atomic Energy (ASEANTOM)

# Nuclear power safety research

- Institutional
- IAEA coordination office under the Ministry of Science and Technology (MOST) (Department of Science, DOS)
- Chemical, Biology, Nuclear and Radiology (CBRN) Center of Excellent Focal point at MOST (Department of Cooperation and Planning)
- Nuclear Science division under DOS, secretary to DOS for nuclear safety regulation
- Alternative Energy Division under REMI has function in studying a nuclear power technology and radiation applications
- Nuclear Physic program in NUOL (2015) more the 30 students

# Activities

- Cooperation with IAEA, GoL prepare or establishing the National Atomic Regulatory Authority in a near future. A Nuclear Legal Committee is set up to draft a nuclear law, which expected to be submitted to National Assembly in the near future
- National team was set up for National CBRN Action Plan under framework of the European Union CBRN Centres of Excellence initiative. (final draft)

# Activities

- IAEA TC Programme



the County Programme Frameworks (CPF) for technical cooperation with IAEA for period of 2014 to 2018 . The CPF identifies 8 priority areas:

1. Human Health
2. Food and Agriculture
3. Radiation and Nuclear Safety
4. Environmental Protection
5. Sustainable Energy Development
6. Industry
7. Nuclear Security
8. Water Resources Management

# IAEA's Technical Cooperation (Cont.)

- There's one TC Project Cycle 2014-2015 is currently implementing namely Project LAO 9001 on **Establishing a National Radiation Safety Infrastructure** and to continue implementation of cycle 2016-2017
- Mean objectives of TC project are:
  - To train the legal team for the capacities in drafting the nuclear law and relevant regulations ;
  - To train technical staff and have a basic regulatory authority information systems (RAIS);
  - To train the inspectors and assist the relevant equipments;
  - To train more numbers of regulators and technical staff in order to contribute for establishing the regulatory in the futures.

# Activities

- COE CBRN
- Prerequisite to strengthening CBRN national Legal frameworks
- Promoting good practice and inter-agency procedures for assessing the risks of CBRN misuse (**Through REMI coordination, 4 Laos's staffs had been trained**)
- Provision of specialized technical training to enhance the first responders' capabilities in case of CBRN incidents (**trained 40 scene commanders, 20 scene responders**)
- Building regional border capacity to identify and detect CRN materials

# Country needs

- To fulfill Lao PDR's obligations, Lao needs to develop and prepare nuclear legislation, establishing the basis infrastructure on radiation and nuclear safety and security, develop human resources and capacity in the nuclear field, and introducing the nuclear applications in various areas.

# Challenges and gab

- Not existing nuclear safety regulation authority
- No specific research institute for nuclear power safety research
- Limited infrastructure for nuclear power safety research
- Limited human research and expertise in nuclear power field.
- Limited capability in nuclear power safety research

# Propose to network cooperation

- Exchange and learning from network member in setting up nuclear authority and regulation.
- Develop research infrastructure
- Enhancing and building up capability to Lao's researchers through practical research in network members' facilities and joint research project.



THANK YOU.