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Nearshore and Offshore Wind Energy - Potential and Challenges in Vietnam

Nguyen Van Tho
Mien Tay Construction University
Vinh Long City, Vinh Long Province, Vietnam
E-mail: nguyenvantho@mtu.edu.vn

Short resume of the presenter

I am working at Mien Tay Construction University (Vietnam) as a lecturer and a research scientist in Environmental Science.

My interested fields:

- Renewable energy
- Treatment environmental pollution, especially domestic wastewater.

Contents

1. Energy demand in Vietnam
2. Opportunities and potential
3. Difficulties and challenges
4. Conclusion

1. Energy demand in Vietnam

- Rapid urbanization
- Population growth
- Rapidly growing economic activities in the industrial and service sectors
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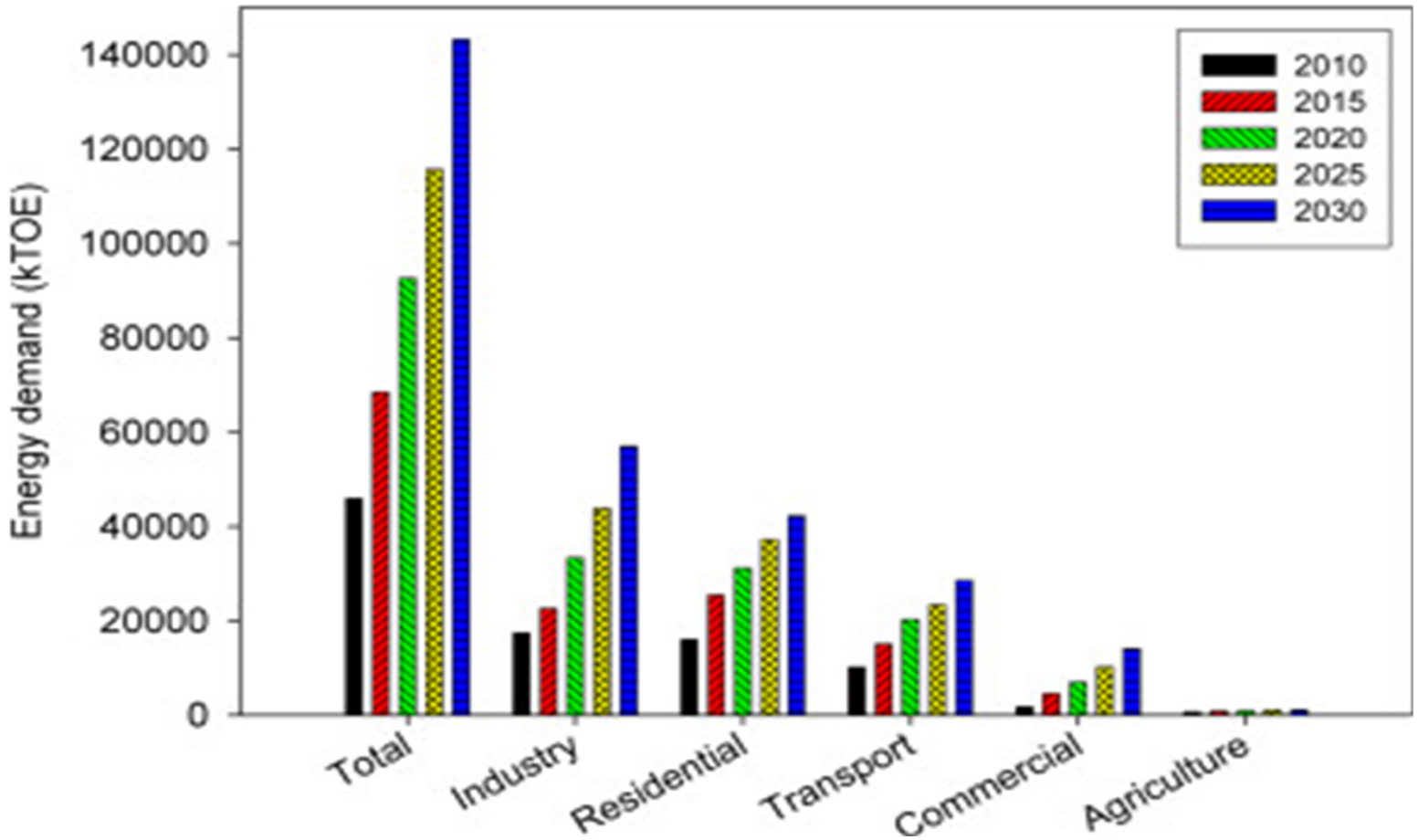
➔ Putting pressure on energy sources in Vietnam

1. Energy demand in Vietnam (cont)

- **Electricity consumption in Vietnam has tripled over the past decade**

- **Vietnam's power demand is forecasted to increase 8.7%/year on average in the period of 2016 - 2030**

1. Energy demand in Vietnam (cont)



Projection of energy demand in Vietnam (Luong et al., 2015)

2. Opportunities and potential

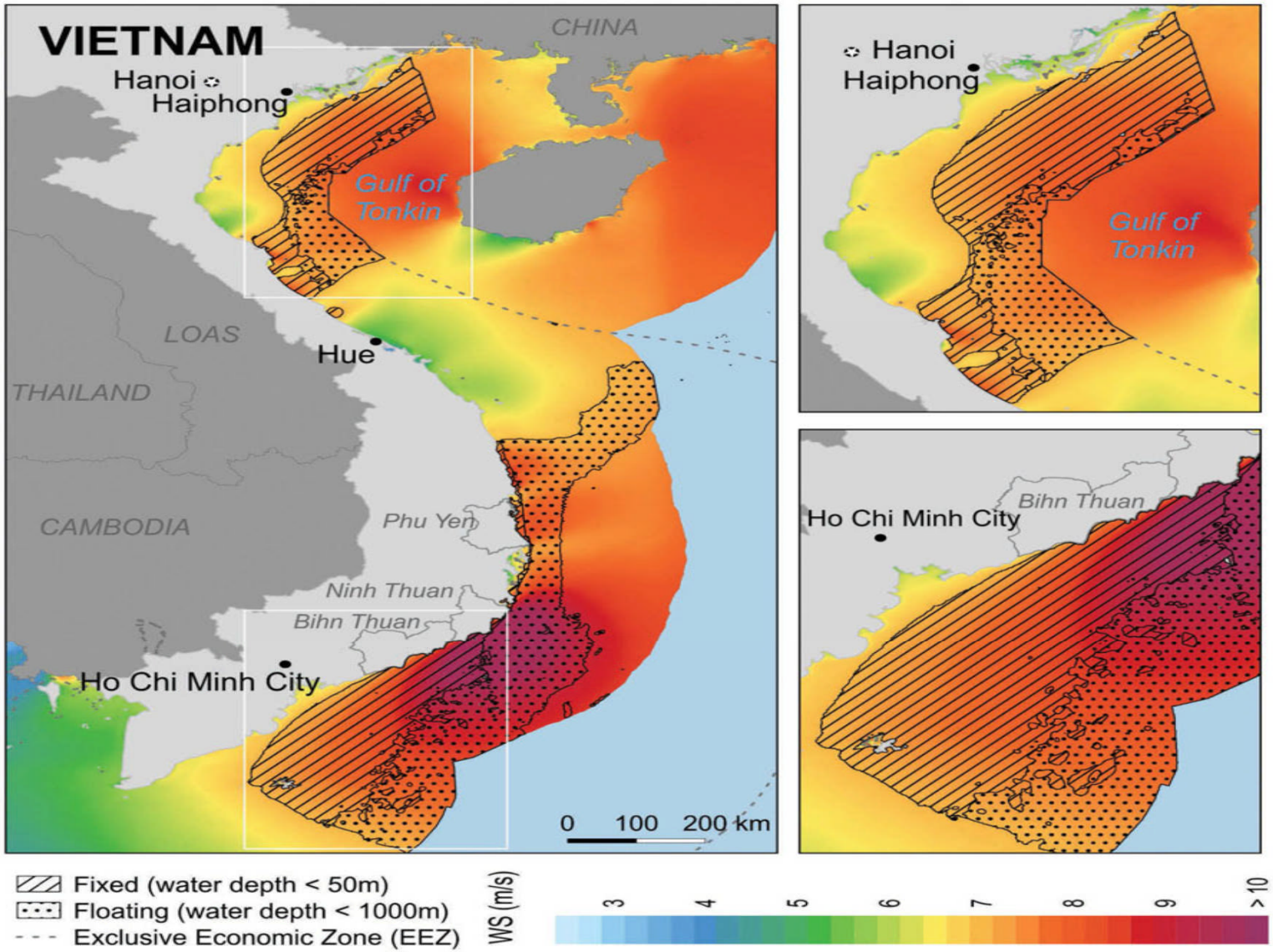
- **a coastline of more than 3,000 km and a marine area of more than 1 million km^2**

=➔ a huge potential for wind energy resources in offshore waters:

+ up to 30m in depth (with an area of 111,000 km^2) producing 64,000 GW

+ between 30m and 60m in depth (142,000 km^2 in area) producing 106,000 GW

2. Opportunities and potential (cont)



Technical potential for offshore wind in Vietnam (ESMAP, 2019)

2. Opportunities and potential (cont)

- **Vietnam puts effort into tackling climate change issues at both a national and international level**

- **The Government is promoting the development and use of renewable energy sources, especially wind power**

2. Opportunities and potential (cont)

Decisions and policies issued by the Government of Vietnam to promote domestic energy supply and reduce dependence on fossil fuels:

- **Decision 1208/2011/QĐ-TTg on 21/07/2011 approving the National Electricity Development Plan (PDPVII) for the period 2011-2020 with consideration to 2030**

➔ **to increase to around 1 GW by 2020 and to 6.2 GW by 2030**

- **Decision No.2068/QĐ-TTg on 25/11/2015 approving the Renewable Energy Development Strategy (REDS) to diversify the energy supply of Vietnam to the year of 2030, with a vision for 2050**

➔ **the proportion of total electricity production from wind power from the current negligible level to about 1.0% by year 2020, about 2.7% in 2030 and about 5.0% in 2050**

2. Opportunities and potential (cont)

Vietnam is among leading countries in developing offshore wind power in Asia:

- **China (2.4 GW)**
- **Vietnam (0.2 GW)**
- **Japan (0.04 GW)**
- **South Korea (0.04 GW)**
- **and Taiwan (0.008 GW)**

2. Opportunities and potential (cont)

- **Decision 39/2018/QĐ-TTg on 10/09/2018 to create a preferential FIT (Feed-in-Tariff) price mechanism to encourage the development of energy types**

=➔ created a new momentum for the wind power market in Vietnam and attracted a series of wind power development projects

3. Difficulties and challenges

- **Lack of human resources trained in the field of wind power is one of the biggest difficulties and challenges in wind power development**

- **Lecturers in this field are lacking and curricula are also limited**

- **There are no specialized majors in the field of renewable energy in general, or wind power in particular, at universities and colleges in Vietnam**

3. Difficulties and challenges (cont)

- **Shortages of skilled human resources for implementing complete wind power projects**

- **High investment costs for wind power projects are also among the biggest barriers to wind power development in Vietnam**

3. Difficulties and challenges (cont)

- **Environmental problems related to wind power plants such as noise from the turbine blades affecting the daily activities and behavior of animals such as birds.**

- **How to dispose of outworn parts of wind turbines safely and without causing environmental pollution**

3. Difficulties and challenges (cont)

- **The connection of wind power plants to any electrical system has impacts on the electricity quality such as variations in voltage, overload in the network, flickers, harmonics, voltage dips, etc.**

- **Vietnam is a developing country and its laws and policies for renewable energy are not stable**

3. Difficulties and challenges (cont)

- **Many Decisions and Circulars for wind energy development promulgated by the Government have hindered the development of wind power projects in Vietnam**

-> Decision 39/2018/QĐ-TTg issued on September 10, 2018 creates difficulties for investors with wind power projects operating after November 1, 2021

4. Conclusions

- **The potential for wind power in Vietnam is huge, but it is a relatively new field**

- **The Government has issued a range of policies and strategies to develop this energy source.**

- **Many barriers to the development of this field such as, insufficient human resources, dependence on overseas technology, high investment capital, etc**

4. Conclusions

- **Developing training programs in this field in universities and research institutes is necessary**

- **Assembling or manufacturing partly or fully the equipment at domestic factories will help reduce dependence on foreign technology and will reduce costs.**

4. Conclusions

It is necessary to have timely financial support from reputable domestic or international credit institutions and the Government.

➔ to implement a successful wind power project

THANK YOU VERY MUCH FOR YOUR ATTENTION!