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Energy Connectivity and Trade Promote the Achievement of SDG7 in Asia

by

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Outline

- 1. Current Status of Energy Connectivity and Trade**
- 2. Potential and Opportunities**
- 3. Necessary Elements and Future Challenges**
- 4. Suggestions on Energy Connectivity and Trade**

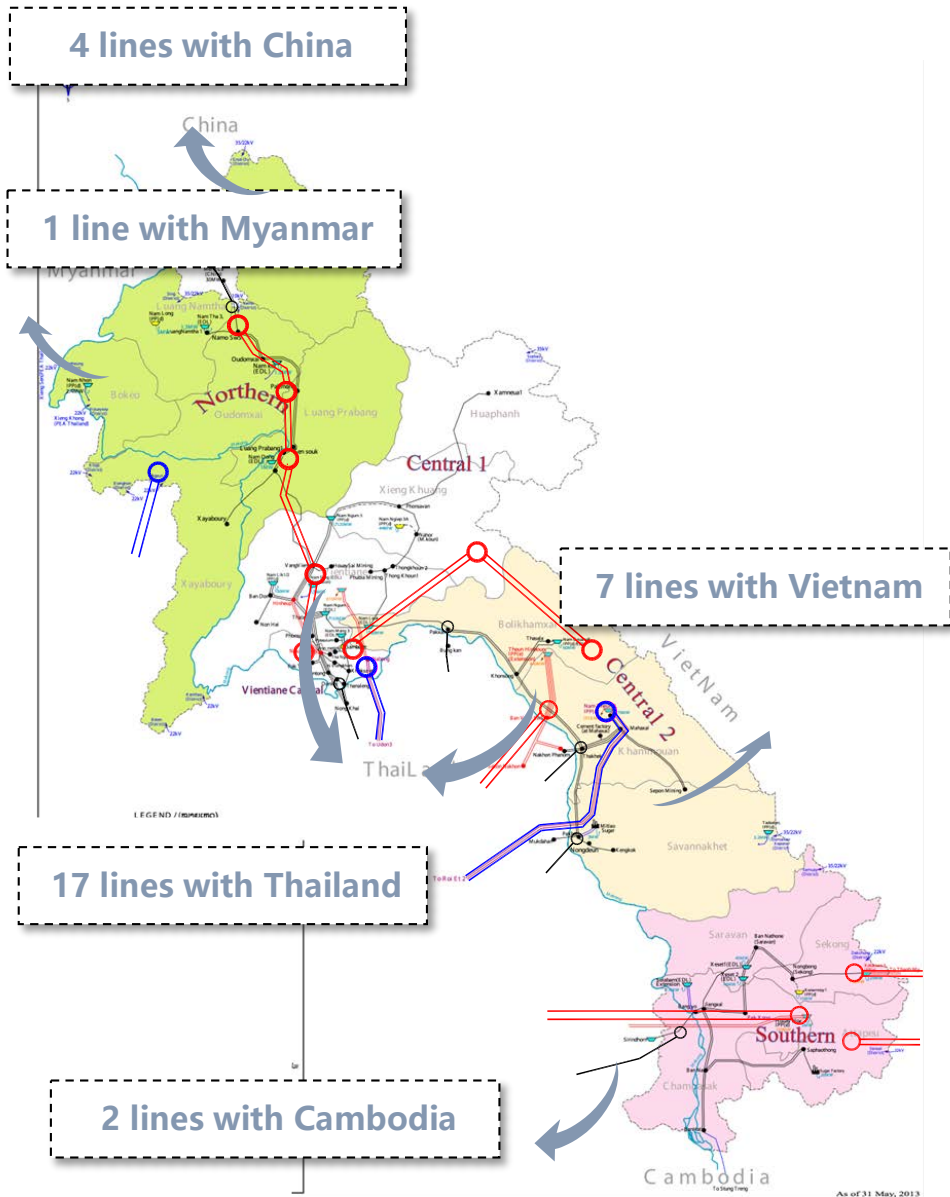
1、 Current Status of Energy Connectivity and Trade

1 Current Status of Energy Connectivity

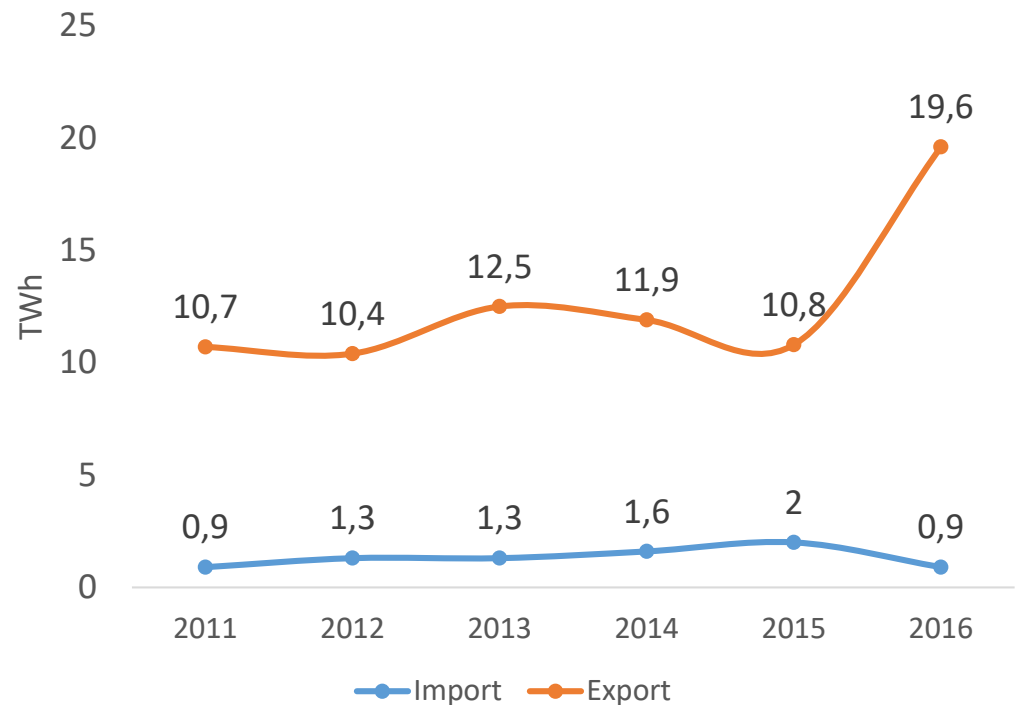
- ◆ Beside the power connectivity, energy connectivity also includes oil & gas pipeline connectivity.
- ◆ With consideration of the huge investment, large project amount and complicated political factors in oil & gas pipeline connectivity, we think that energy connectivity in Asia could **focus on the power connectivity at first.**

1 Current Status of Energy Connectivity

Power Trade of the Developing Countries: Laos



- Laos has **33 power grid** interconnections with neighboring countries.
- In 2015, the Laos annual electricity import is **860GWh**; export is **19.5 TWh**.



1 Current Status of Energy Connectivity

Power Trade of the Developing Countries: Mongolia

- ✓ Annual electricity production: 6,300 GWh, 20% imported from China and Russia. The imported electricity helped Mongolia to solve the power supply of residents in the northern border areas. At the same time, solve the power supply problem of the southern mineral projects.



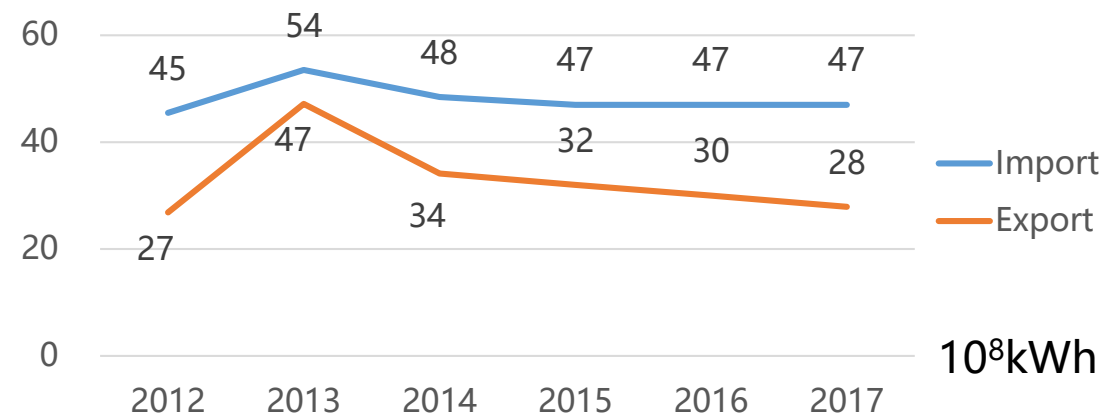
1 Current Status of Energy Connectivity

Power Trade of Some Developing Countries: China

- ◆ China has many trans-provincial power transmission channels. There are a large number of power interconnections and trade in various provinces. In addition, China and neighboring countries have a certain amount of power grid connectivity. Achieve stable power trade every year. Satisfy the power service problem in the border areas of China and neighboring countries.



2012-2017 China Power Trade with other countries



2、 Potential and Opportunities

2 Potential and Opportunities



Sustainable Development Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

By 2030, enhance ***international cooperation*** to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote ***investment in energy infrastructure*** and clean energy technology

2 Potential and Opportunities



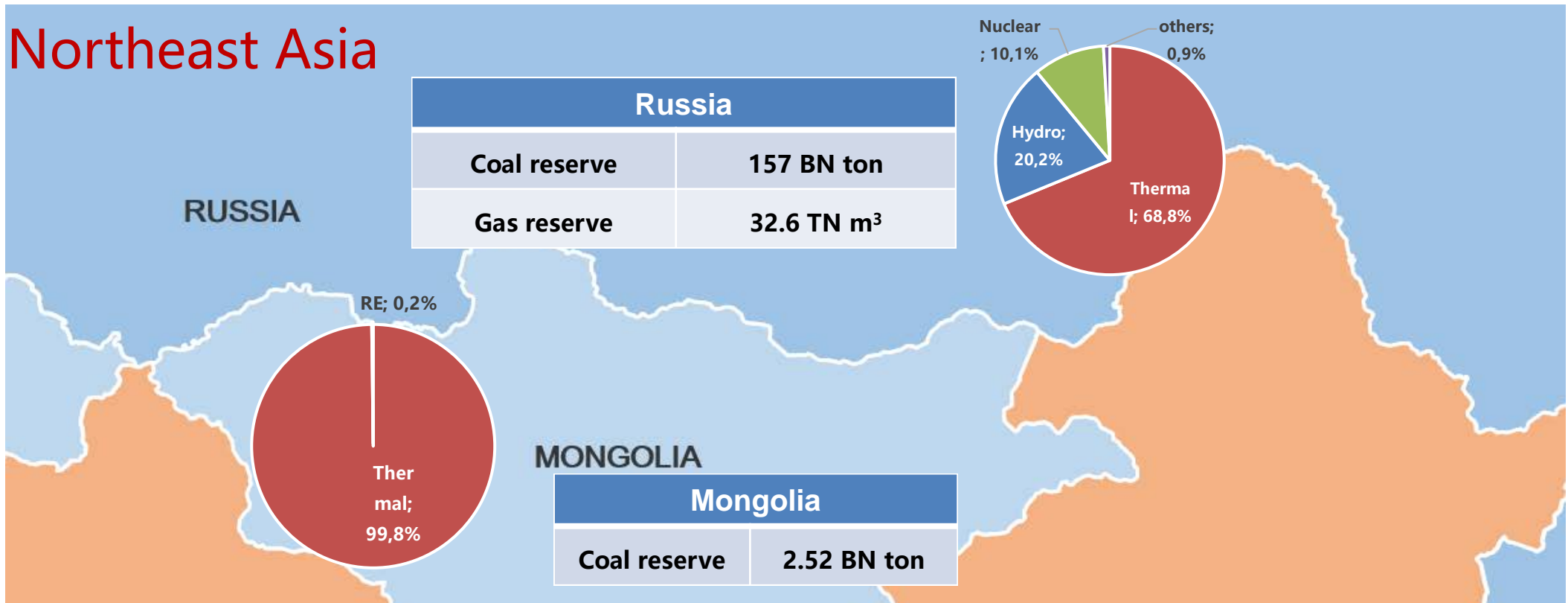
Universal access
Energy efficiency
Renewable energy

By 2030—

**ensure universal access to modern energy services;
double the global rate of improvement in energy efficiency;
double the share of renewable energy in the global energy mix.**

2 Potential and Opportunities

Northeast Asia



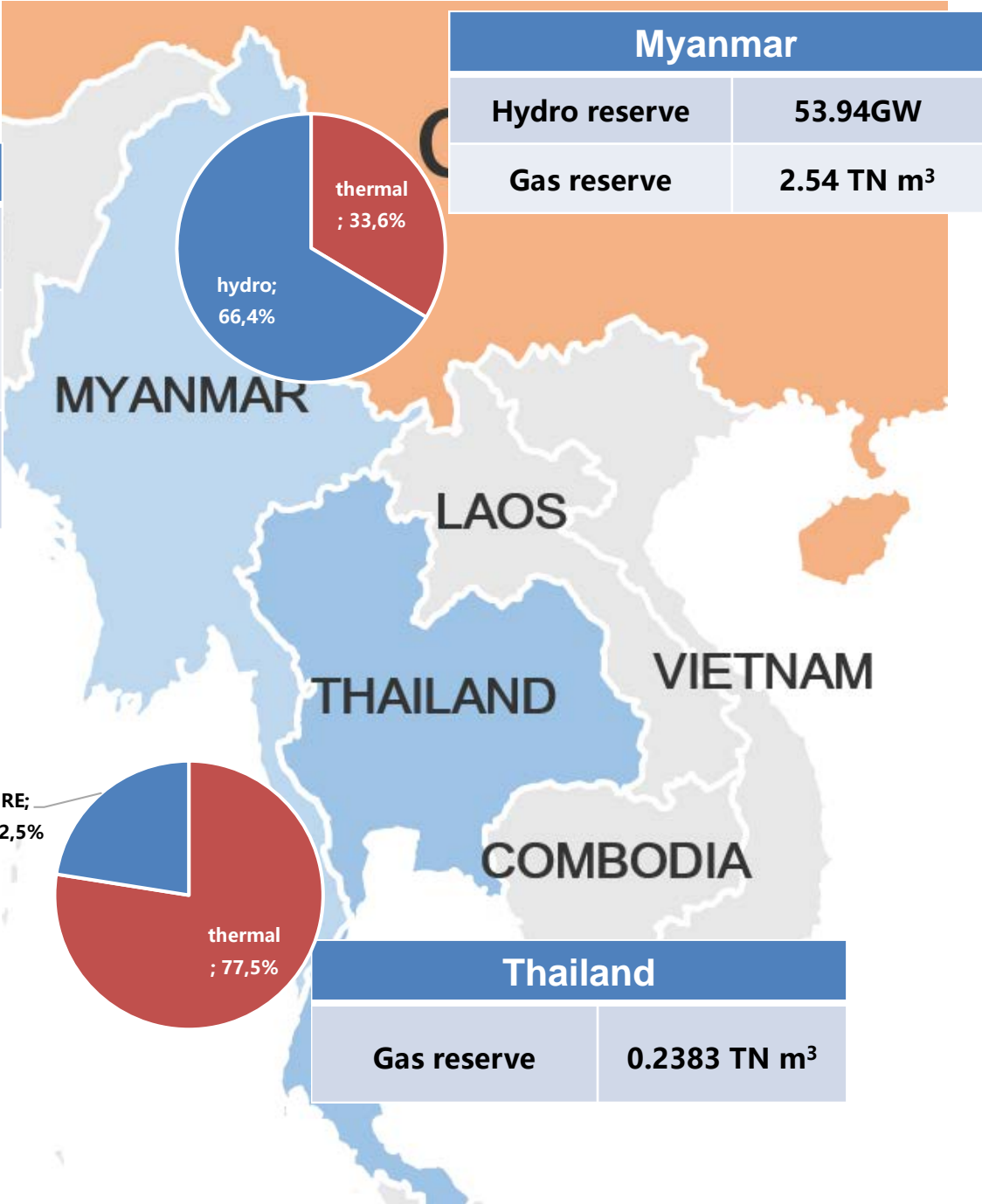
	Russia	Mongolia
Installed electrical capacity	248GW	1.09GW
Total electricity consumption	1060TWh	6.69TWh
Electricity consumption per capita	7344kWh	2300kWh
Potential	Abundant energy resources, low demand in the far-east area, interested in exporting elec. to China, Japan, Korea.	Rich coal mines, Low demand, interested in exporting elec. to China and others.

2 Potential and Opportunities

Southeast Asia

	Myanmar	Thailand
Installed electrical capacity	4.71GW	37.61GW
Total electricity consumption	14.16TWh	184.3TWh
Electricity consumption per capita	265kWh	2721kWh

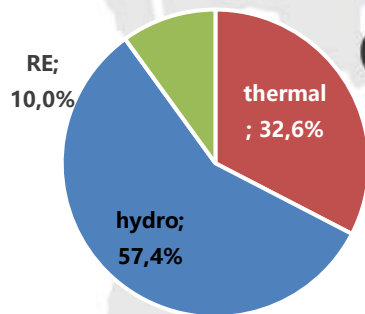
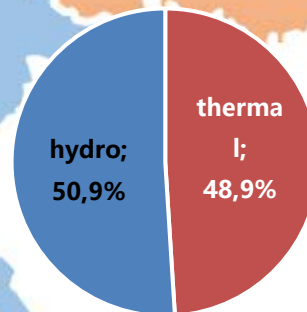
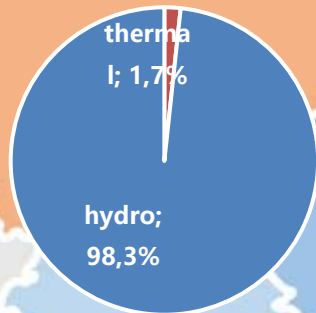
	Potential
Myanmar	Short-term: potential elec. Importing Long-term: potential elec. exporting
Thailand	High demand, potential elec. Importing



2 Potential and Opportunities

Southeast Asia

Laos	
Hydro reserve	23.47GW



	Laos	Vietnam	Cambodia
Installed electrical capacity	6.36GW	39.89GW	1.40GW
Total electricity consumption	4.89TWh	143.5TWh	4.86TWh
Electricity consumption per capita	731kWh	1582kWh	311.5kWh

	Potential
Laos	Low demand, Rich hydro power, potential elec. Exporting
Vietnam	High demand, potential elec. Importing
Cambodia	Weak power system. Potential elec. Importing

2 Potential and Opportunities

Potential and Opportunities of Cross-border Power Connectivity and Trade in Asia

- Many countries have **abundant energy resources**, e.g. hydro power in Southeast Asia, wind power in Northeast Asia, solar power in West Asia, and etc.
- Electricity consumption per capita is still at a low level and many people are **without access to electricity**.
- Power Connectivity could promote better **allocation of energy resources**, meet the needs of **energy quality and quantity for economic development**.
- Promoting and accelerating cross-border power connectivity in Asia is significant to **sustainable development of the region**. It will accelerate the implementation of **SE4ALL and SDG 7**.

3、 Necessary Elements and Future Challenges

3 Challenges

- **Political factors:** cross-border energy connectivity requires relevant countries have **strong political trust**; needs to coordinate the demands of all stakeholders; concerns on degrading of state energy security.
- **Economic and business factors:** **Large investments; Complicated business model.** The payback period is long and uncertain, especially under different legal and national systems.
- **Technical and standards factors:** requires to coordinate the planning and operation of power systems in different countries, including **grid code, electricity market design and dispatching, etc..**
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4、 Suggestions on Energy Connectivity and Trade

4 Suggestions on Energy Connectivity and Trade

1. Strengthen the cooperation mechanism for energy connectivity and trade

- Strengthen policy communication between multiple countries, make full use of multilateral cooperation platform or mechanism, promote the cooperation mechanism of energy connectivity. Mobilize the enthusiasm of relevant enterprises, financial institutions and consultancies, and promote related work steadily.

2. Jointly carry out the research work on energy connectivity planning

- Encourage widely participation. Carry out the research jointly on energy connectivity planning research and make scientific scheme, docking each country's development planning.

4 Suggestions on Energy Connectivity and Trade

3. Promote the harmonization of grid construction and operation

standards

- Study on the power grid construction and operation standards of multiple countries. Strengthen the docking of related standards, to provide support for power connectivity projects.

4. Explore the construction of regional power market

- Study power market mechanism of related countries, and formulate regional electricity trading and pricing mechanism. Explore to establish regional power market.

4 Suggestions on Energy Connectivity and Trade

5. Explore to establish an international convention on energy connectivity and trade

- Study on transnational investment protection, cross-border energy trade, power equipment maintenance, tax and tariff, explore to establish international conventions for investment, construction and operation of energy connectivity projects, providing legal protection.



Thank you!