الملتقى السعودي للكهرباء
Saudi Electricity Forum
طاقة مستدامة لرؤية شاملة
Sastainable energy for Comprehensive Vision

رؤية VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

الملتقى السعودي للكهرباء

برعاية معالي المهندس

خالد بن عبد العزيز الفالح

وزير الطاقة والصناعة والثروة المعدنية

٢٠ - ٢٢ محرم ١٤٣٩هـ - الموافق ١٠ - ١٢ أكتوبر ٢٠١٧م

فندق الفيصلية - الرياض

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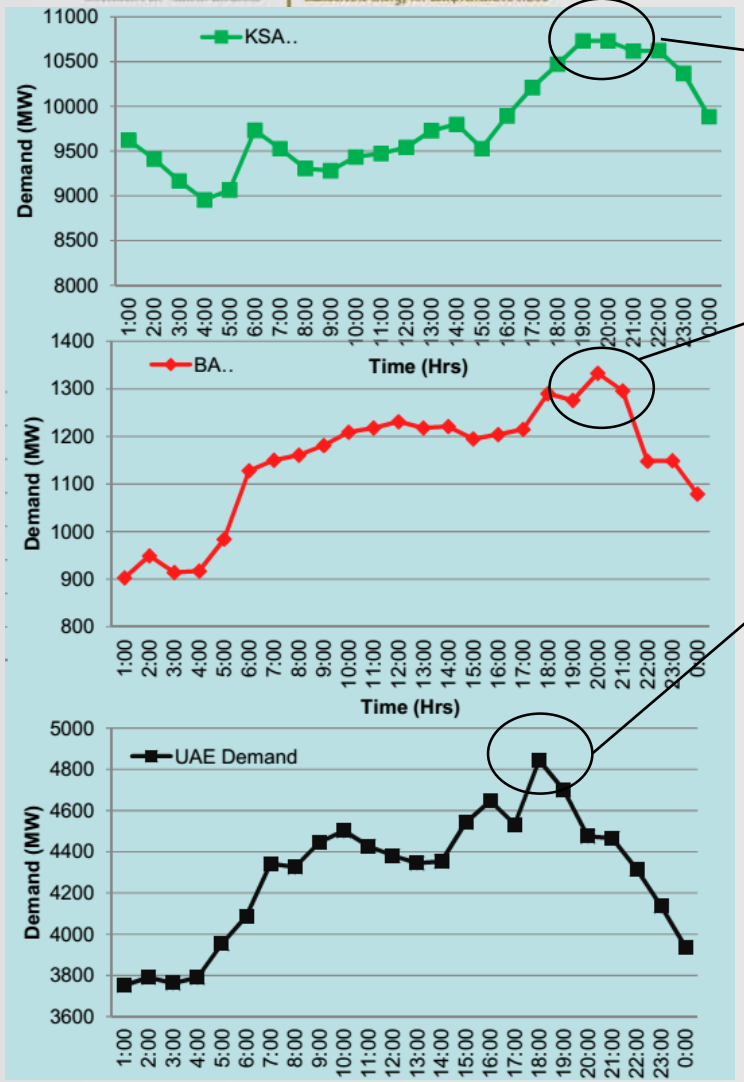
Electrical interconnection: a potential to harvest the benefits of electricity market integration in GCC

	Level of market integration	Potential benefit of market integration	Requirements
Security of supply gains	Used for system stability, only in emergency situation	Increased security of supply	Physical connection; bilateral agreements between TSOs
Economic welfare gains	Bilateral trade: long-term agreements between the neighbouring countries/incumbents	Less power plant capacity is needed	Agreements between the countries/incumbents
	Long-term cross-border capacity auctions	Decrease the electricity wholesale price	Partially liberalized wholesale market
	Day-ahead cross-border capacity auctions	Decrease the electricity wholesale price	Liberalized wholesale market without fuel and production subsidy; liquid and transparent power exchange; cooperation between TSOs
	Intraday CB capacity auctions	Decrease the amount of reserve capacity	Flexible scheduling
	Cross-border balancing energy trade	Decrease the cost of balancing energy	Very strong cooperation between the TSOs

Closer market integration

Stronger market integration means less need for new generation capacity



Peak hours
differ by country

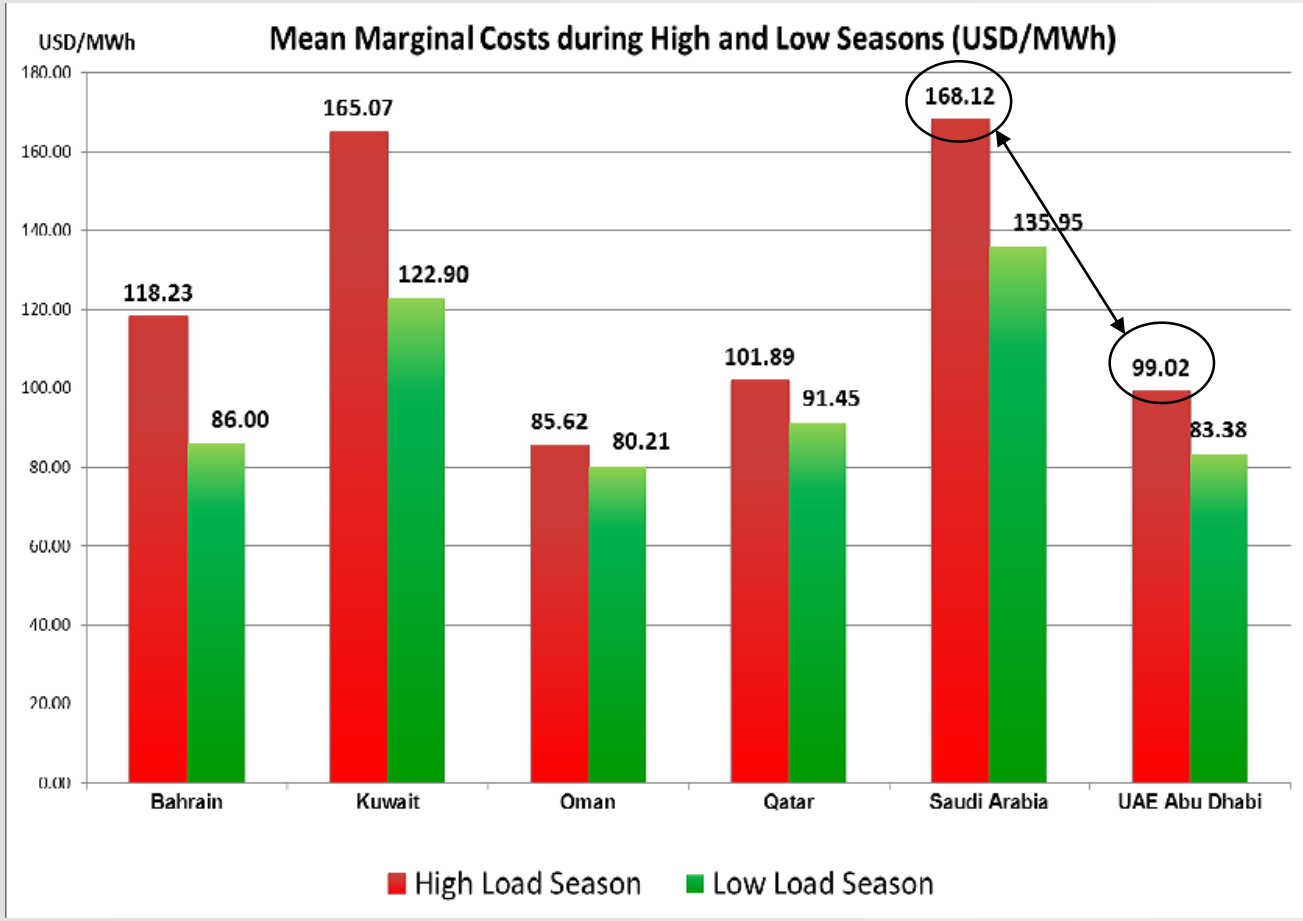
Cross-border capacities can
substitute generation capacities

Transmission line is cheaper
than generation capacity

Cross-border trade can increase the region's total social welfare

Source: Ahmed Al-Ebrahim, September 2014; 3rd Power Trading Forum

Significant regional differences in power generation costs



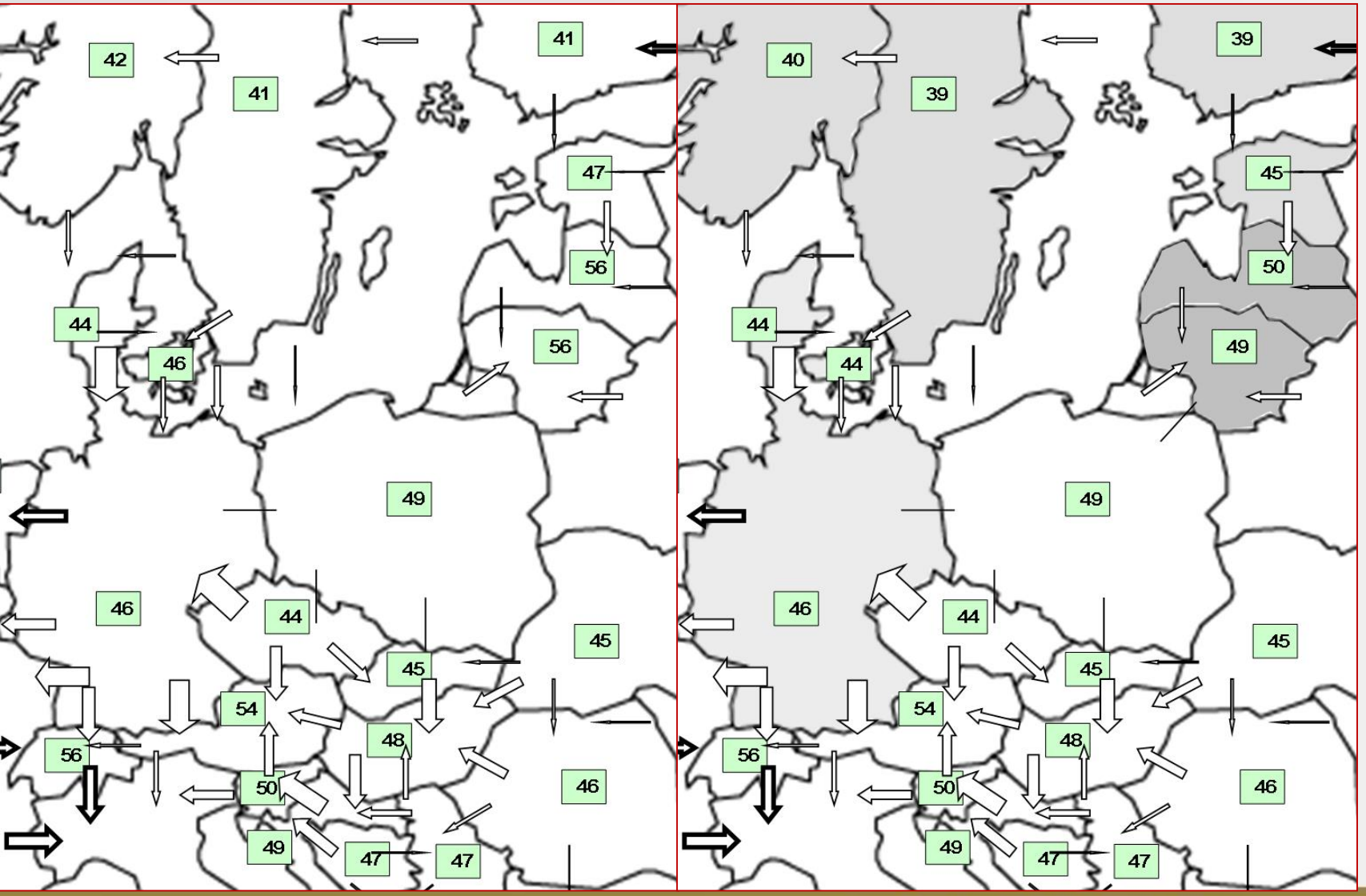
Source: Ahmed Al-Ebrahim, September 2014; 3rd Power Trading Forum

Stronger market integration could help to decrease the electricity price in Saudi Arabia; it would also results in a higher electricity price in UAE

Less generation in Saudi Arabia, more in UAE

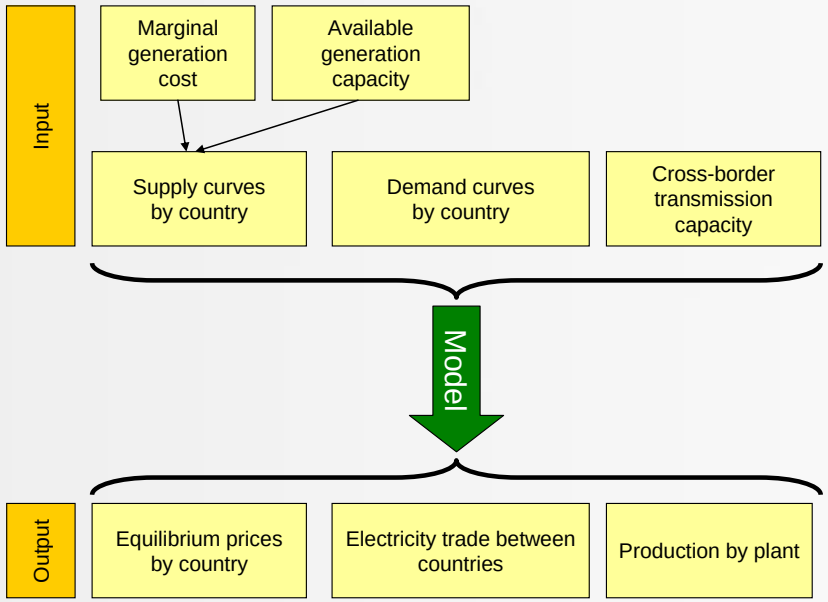
The total cost of electricity generation in the two countries could decrease if the market integration was stronger

Example: The impact of a new 1,000 MW Poland-Lithuania line on electricity wholesale prices, €/MWh



Methodology:

- European Electricity Market Model (EEMM) developed by REKK



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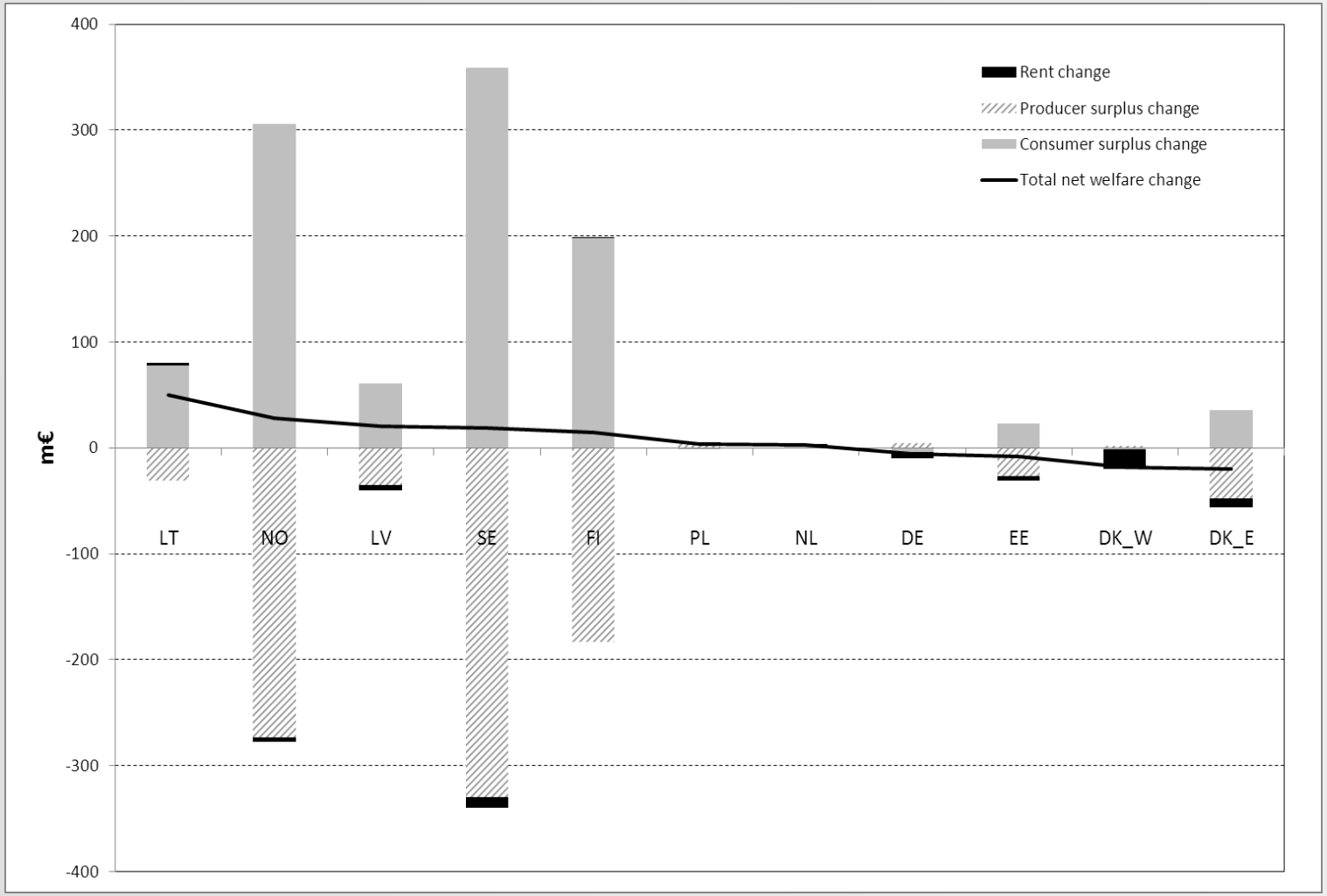

- The overall welfare gain of the line is positive
- Negative impact in some countries
- One of the constructing countries is almost unaffected by the new interconnector (eg. PL)
- A new line can generate significant welfare changes in distant countries (eg. NO)
- Cross-country compensation scheme might be needed

Key messages

- Start harvesting significant benefits from cross-border electricity trade in GCC
- Start with simple market design
- Subsidies and compensation needs are key to consider
- Regional market modelling can facilitate successful discussions about costs and benefits

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Khalid Bin Abdul Aziz Al-Faleh

Minister of Energy, Industry and Mineral Resources

10 -12 October 2017

Riyadh – Al Faisaliah Hotel

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