

Invest in

Ukraine

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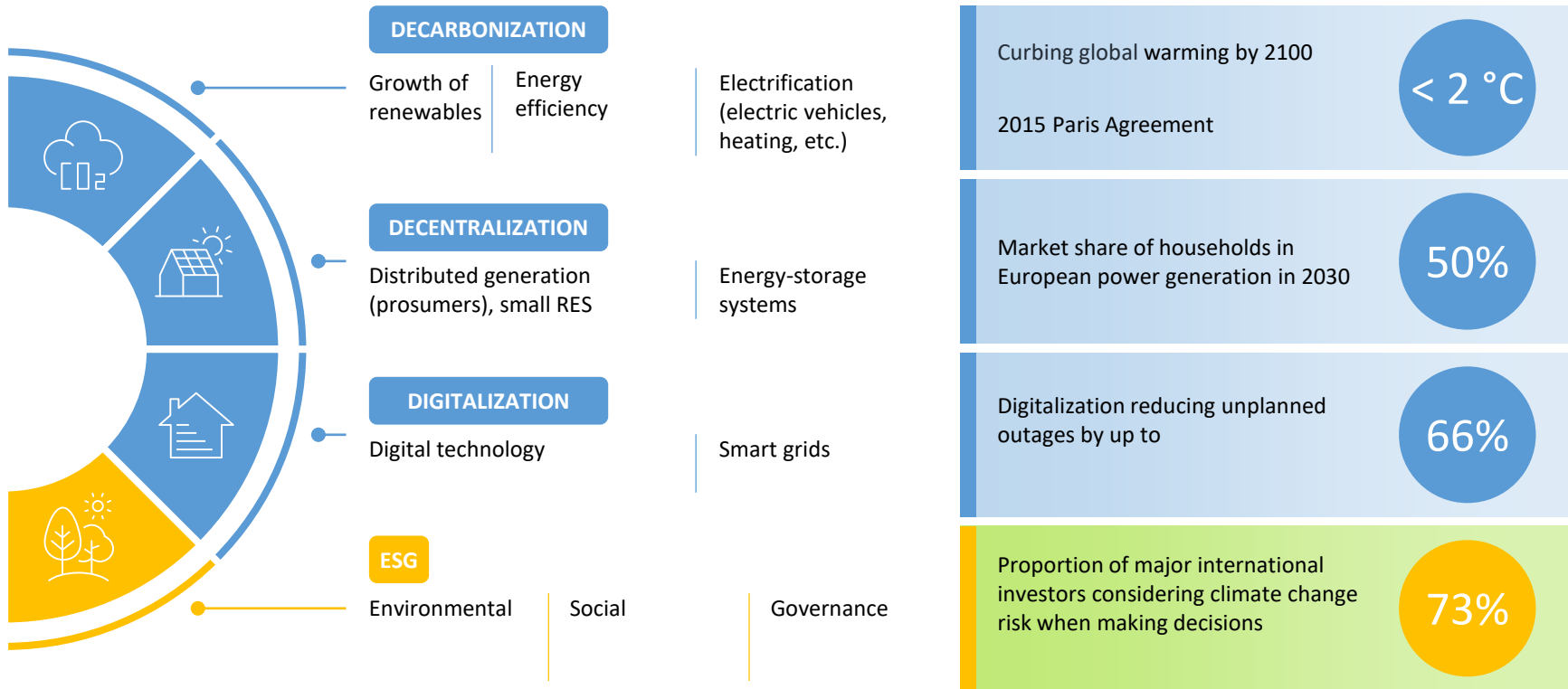
DTEK GROUP

EEF Dinner Debate “In need of a robust European energy system: A vision from the EU and Ukraine”

September 25, 2019

Energy
in action **DTEK**






Four global trends shaping the direction of the energy market



SOURCE: CE Delft; The potential of energy citizens in the European Union, 2016; Bloomberg New Energy Finance. Utility Digitalization: Tech, Strategies and Progress, 2018; EY survey

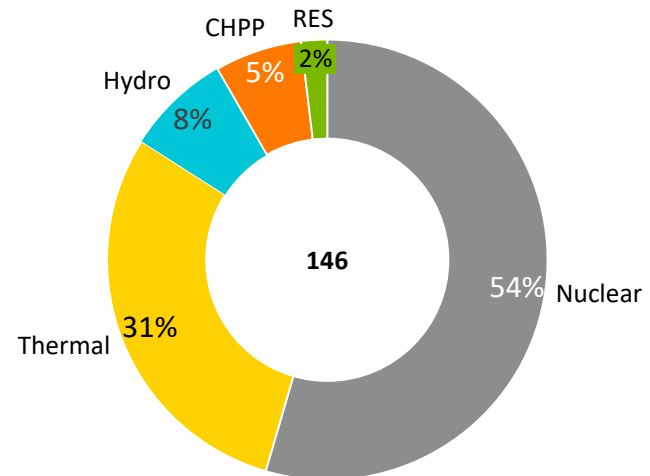
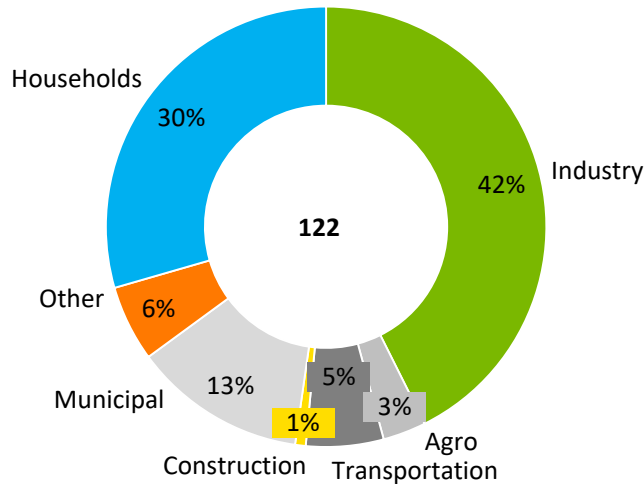
Ukrainian Electricity Generation in 2018



	Nuclear 	Thermal 	Hydro 	CHPPs 	RES 
Installed capacity	13.8 GW	24.0 GW	6.2 GW	4.4 GW	2.1 GW
Ownership	100% State-owned through Energoatom, 4 NPPs	State-owned: Centerenergo - 7.7 GW of thermal capacity Privately-owned: Donbasenergo - 0.8 GW of thermal capacity DTEK - 9 power plants of 13.5 GW (3 generation companies)	100% State-owned through Ukrhydroenergo	Mixed ownership: more than 20 coal and gas fired CHPPs	Mostly privately-owned: 200 operating entities; As of Q3 2019, DTEK operates 300 MW wind and 210 MW solar capacity

Net consumption, TWh

Generation mix, TWh

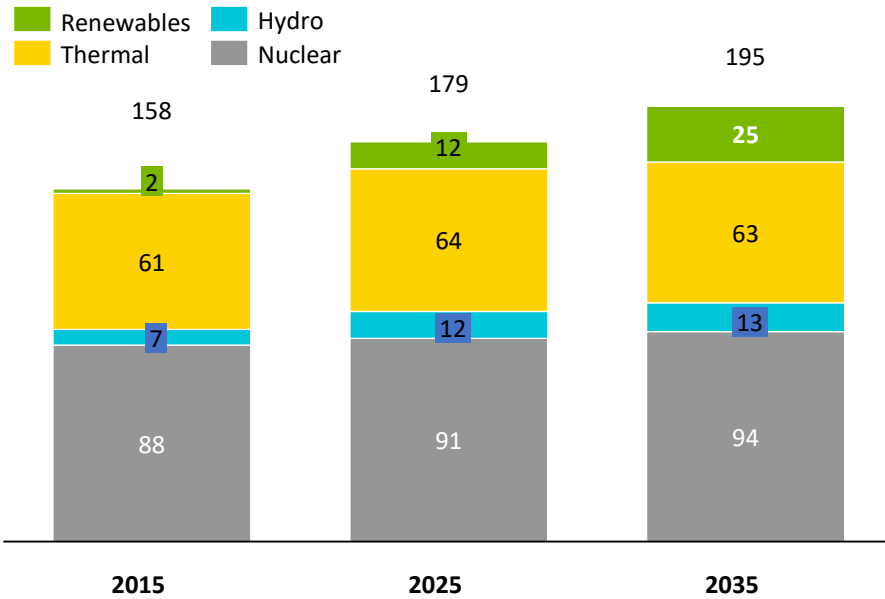


Energy Strategy of Ukraine 2017 - 2035

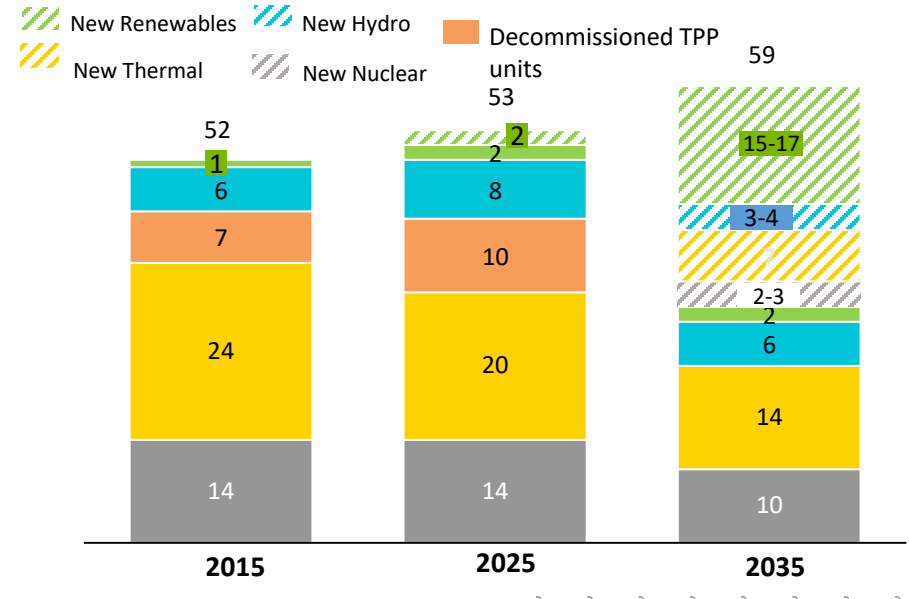


Main Policy Objectives	<ul style="list-style-type: none"> • Comply with Energy Community Treaty Obligations (extension of EU energy market into Ukraine) • Increase energy independence (energy imports below 33% by 2035) • Improve energy efficiency (energy intensity of GDP below 0.13 toe/ USD '000 of GDP) • Increase the share of renewable energy (up to 30% of the capacity mix by 2035) • Gradually apply EU environmental standards 		
Implementation Stages	2017-2020 Implementation of Market Reforms	2021-2025 Optimisation and Innovation	2026-2035 Sustainable Development
Critical Measures by Stage	<ul style="list-style-type: none"> • Implementing market reform, promoting competitive relations • Creating environment to attract investments • Adopting EU's 3rd Energy Package 	<ul style="list-style-type: none"> • Synchronisation with ENTSO-E • Implementing the National Emissions Reduction Plan • Establishing conditions for attracting new investments 	<ul style="list-style-type: none"> • Decommissioning TPP fleet and building replacement capacity • Achieving the legal maximum levels of SO₂, NO_x emissions • Reaching up to 30% of renewable energy in the capacity mix

Target generation mix, TWh



Target capacity mix, GW

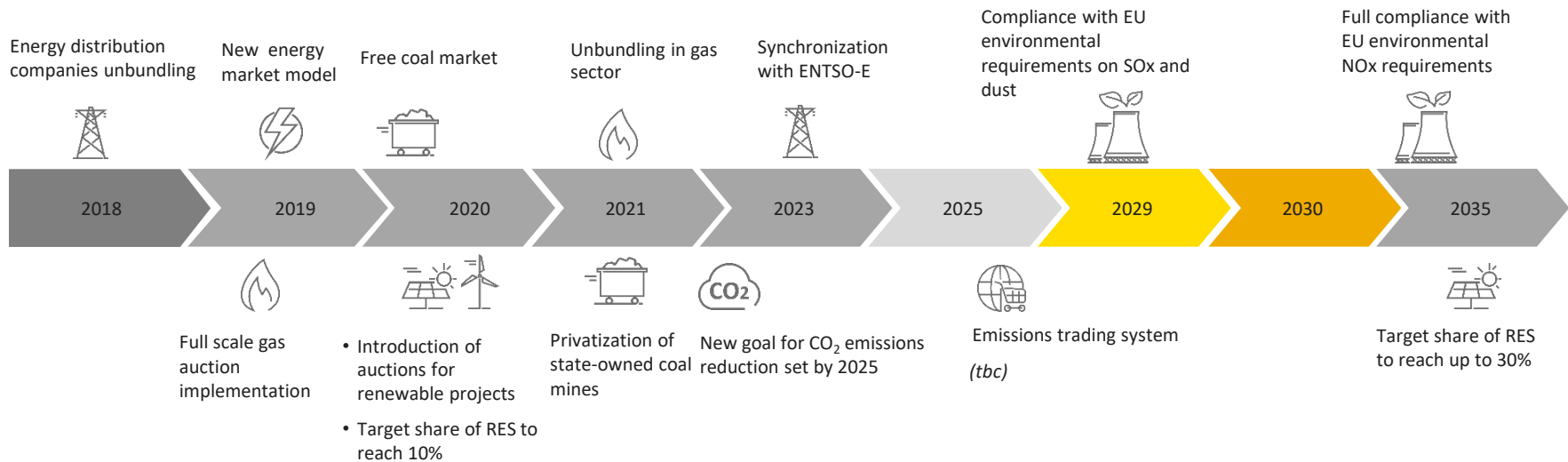


Energy Market Reform in Ukraine

Convergence with EU Energy Market Regulation

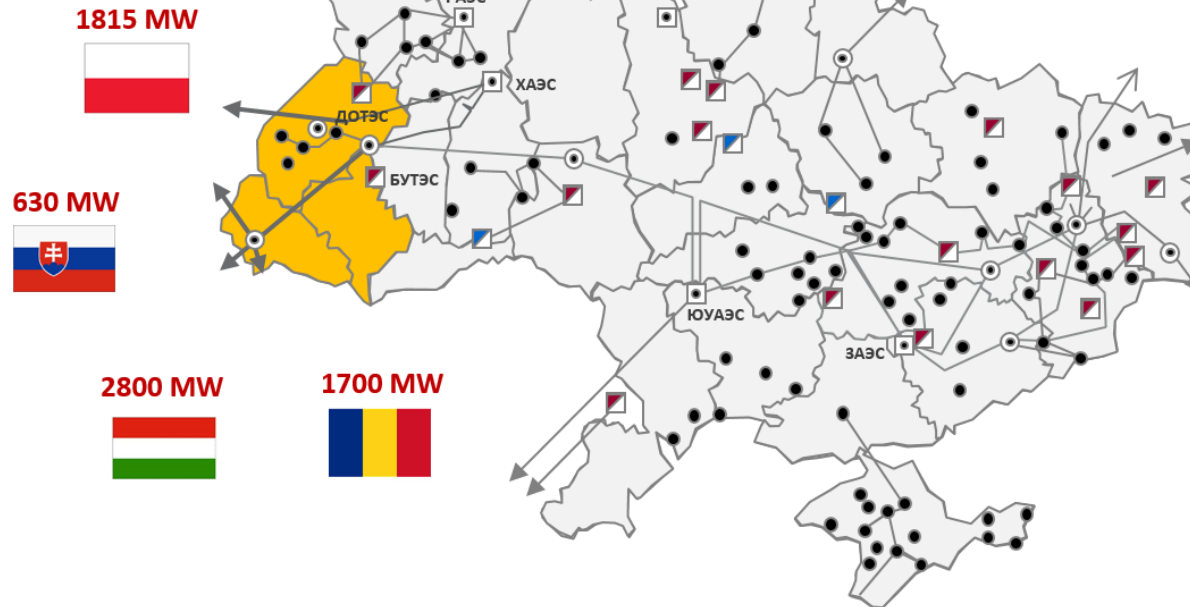
- Ukraine is a contracting party to the Energy Community treaty and, as such, is under a contractual obligation to transpose EU energy legislation into national
- The key objective of the Energy Community Treaty is to harmonise and integrate the energy markets in Ukraine with those of the EU
- 2015: Ukraine adopts gas market law and launches the market
- 2017: Ukraine adopts electricity market law and launches the market on July 1st, 2019

Milestones in Energy Market Reform



Ukraine on the way to synchronization with ENTSO-E

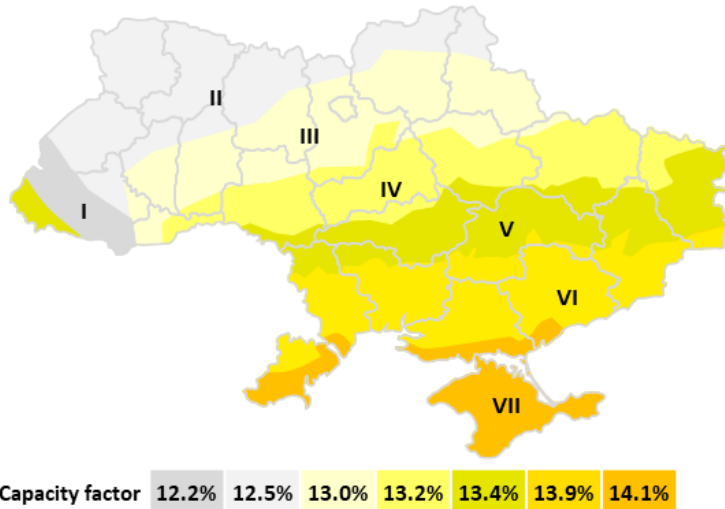
Maximum
cross-border capacity



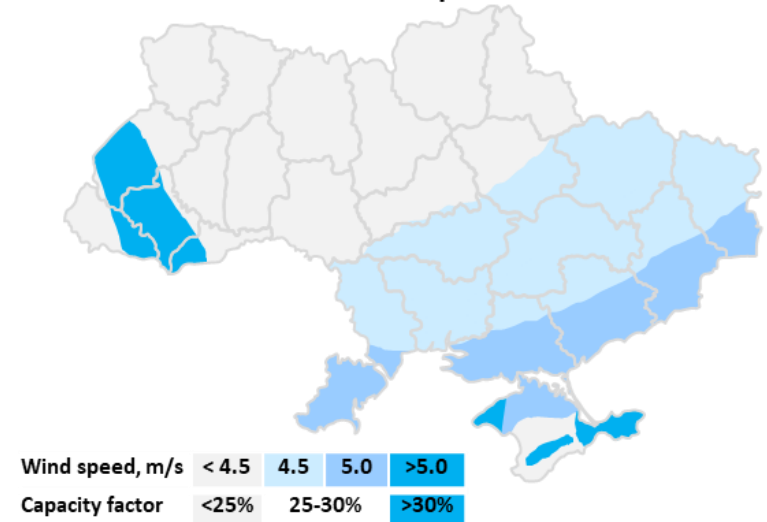
- Market opening- Ukraine started import and transit through Burshtyn island (from Slovakia to Hungary and Romania)
- Synchronisation with ENTSO-E: potential volumes of electricity export/import will grow from 4-5 to 20 bln kWh per annum
- The future of import-export-transit , as well as of renewables, is shaped by grids development.
- Ukraine will be the main destination of the European investments into the energy sector outside the EU. Both RES and grids are longing for European investments.

Renewable energy potential in Ukraine

Solar irradiation levels

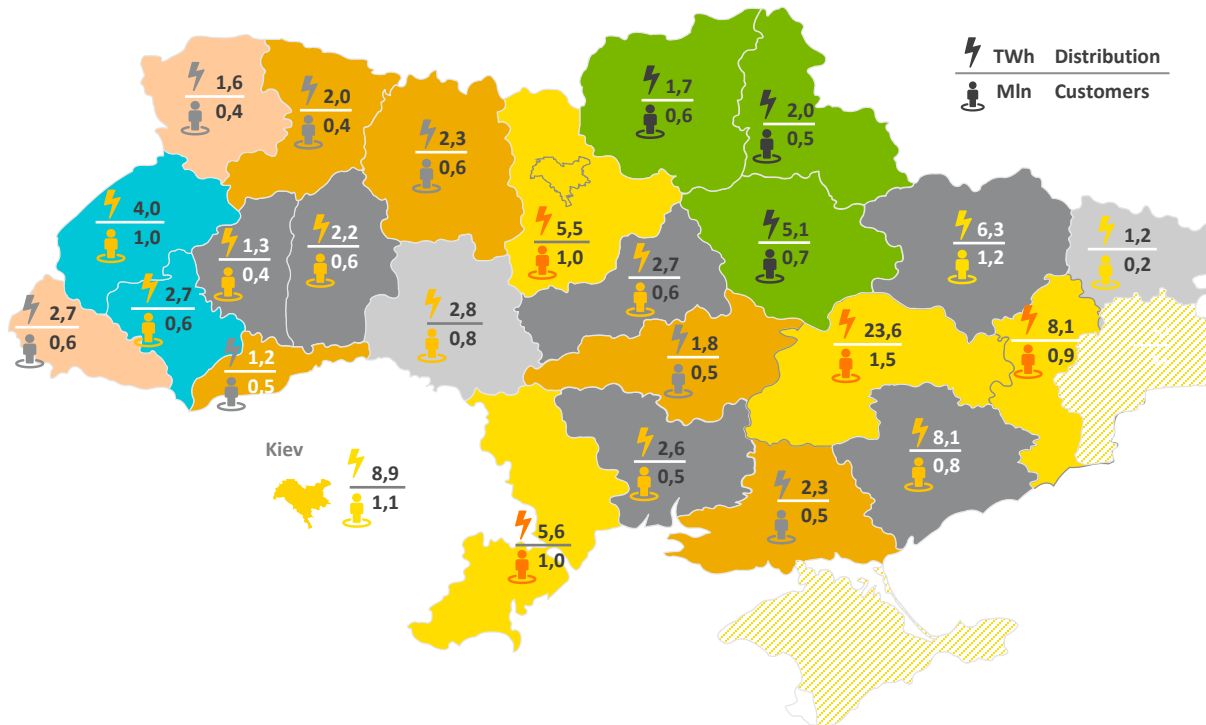


Wind speeds



- Ukraine has favorable natural and economic conditions for development of RES. 4 GW of RES capacity will be commissioned by end 2019; according to the Ukrainian Energy Strategy 15-17 GW of new RES capacities will be built by 2035. These plans require significant investments.
- Since 2020, new auctions system will be introduced to harmonize with the EU market.
- Favorable investment climate is a prerequisite for extensive RES growth. It is important to avoid retroactive or restrictive measures on existing and new renewable projects.

Ukraine DSO market structure



- The average lifetime of electricity grids in Ukraine is 40 years with the wear and tear amounting to 70%.
- In 2018, SAIDI in Europe was 102 min/client, while in Ukraine – 696; losses in Europe – 7%, in Ukraine – 12%.
- The current "cost+" tariff setting system does not provide incentives for the energy distribution companies to invest.
- RAB tariff system should be introduced.
- Strengthening and modernizing distribution grids is key to enable larger share of renewables in the Energy System of Ukraine and to be able to provide the flows to/from the EU after the synchronization with ENTSO-E

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