



Ideen.
Gemeinsam.
Umsetzen.

+
E
Trianel

New opportunities for municipal utilities: Changes, Challenges and Chances as a result of liberalization

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Berlin, 2nd June 2016

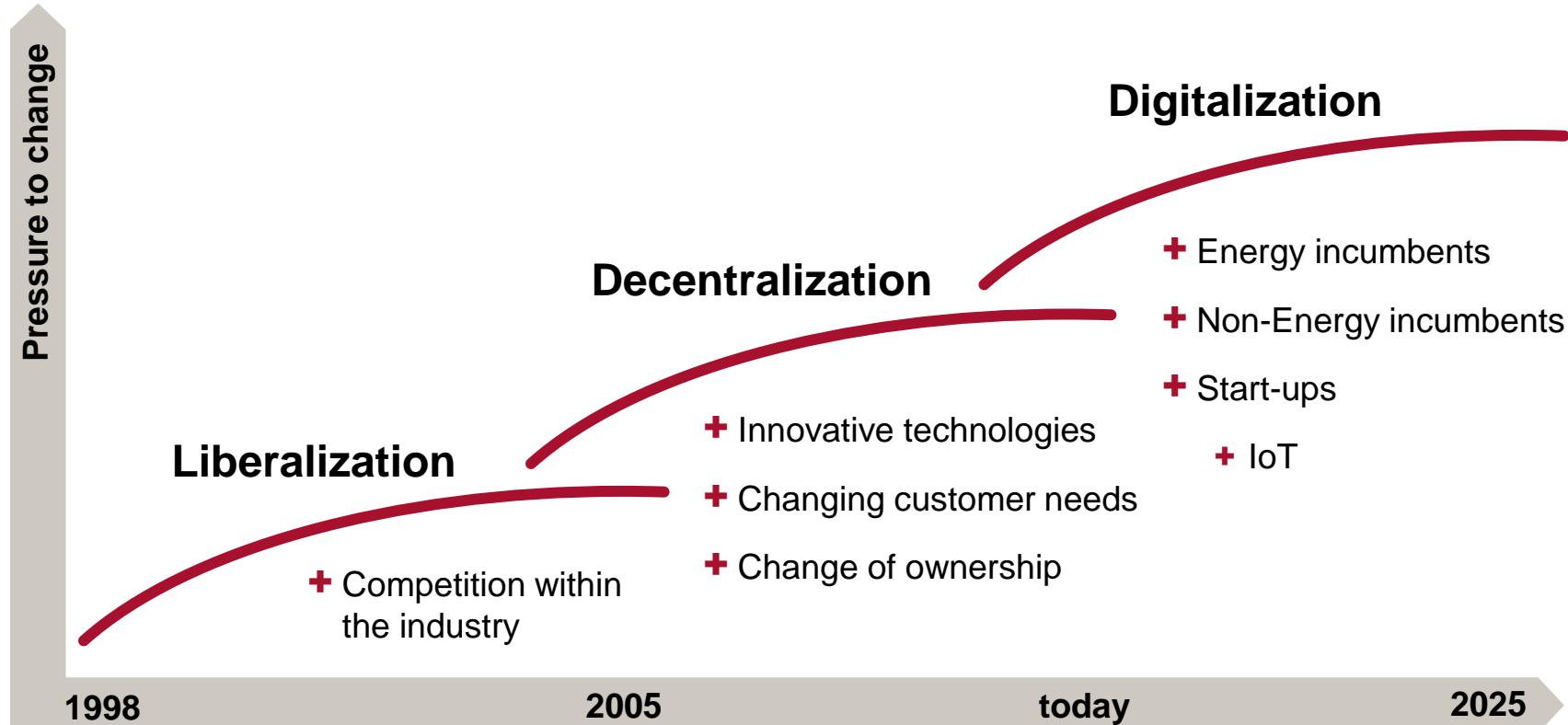
Agenda

- + Liberalization
- + Decentralization
- + Digitalization



Source: 1) www.flyingafargo.wordpress.com; 2) www.horse-today.de; 3) www.teslamotors.com

Megatrends in the energy industry – challenges for municipal utilities



Megatrend 1: Liberalization changes the value chain

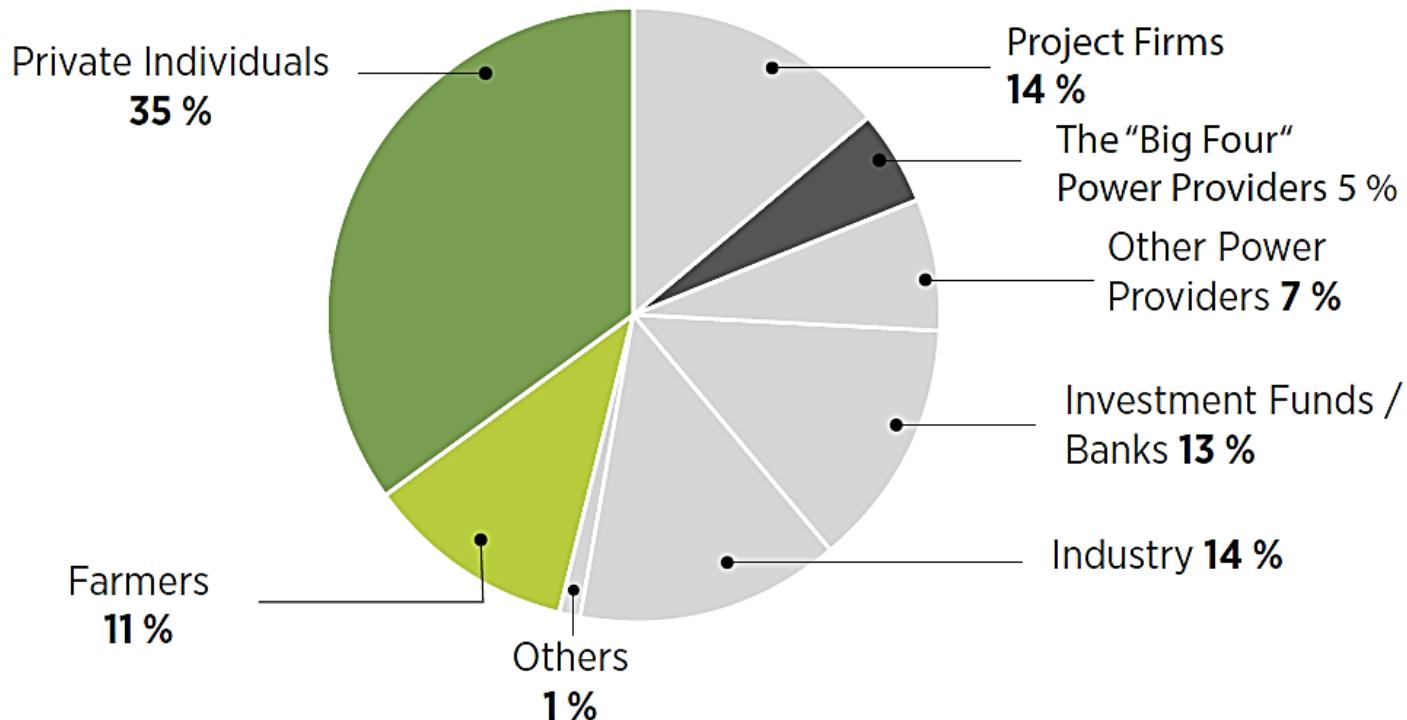


1. Unbundling of grid from wholesale/ retail has produced a functionally organised value chain back then (simplified).
2. Liberalization did create an additional level in the value chain – wholesale – a link between generation (supply) and retail (demand).
3. Companies had to reposition themselves in the newly organised value chain.
4. The fight for parts of the value chain is in full swing,
 - + both for positioning along the value chain,
 - + and within the individual levels of the value chain.



Source: 1) www.apple.com; 2) www.freepik.com; 3) www.trianel.com

Megatrend 2: Decentralization driven by the crowd



Source: trend:research / Leuphana, excl. pump storage, wind offshore, geothermal, biogenic waste (2013)

Some would say it is quite challenging ... or in other words „The worst crises of all time“

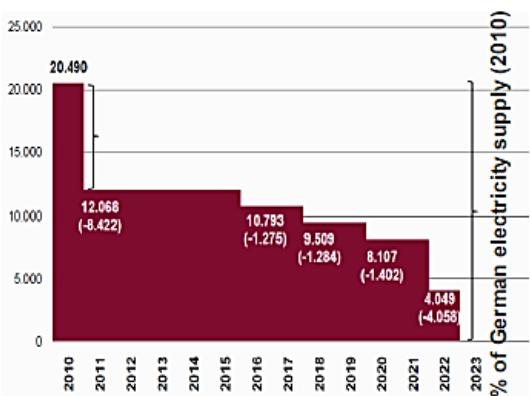
Share price development E.ON and RWE



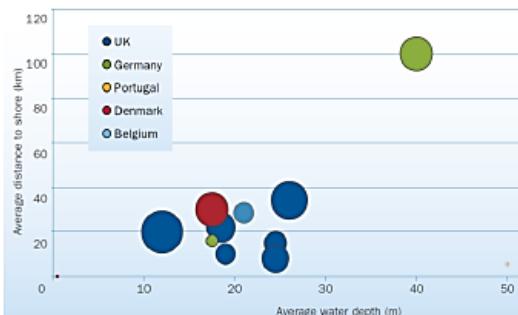
Source: OnVista (2015)

Challenges for German utilities: Nuclear phase-out, Off-Shore, Mid-day Peak

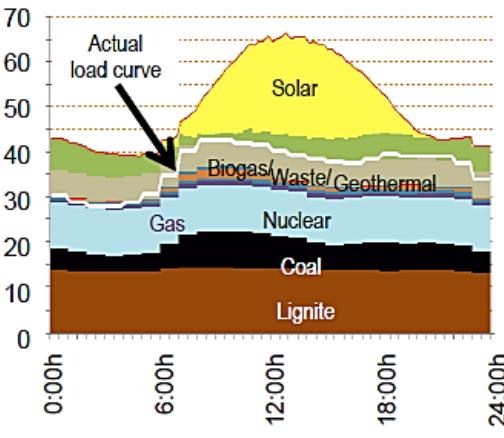
Gradual phase out of nuclear plants¹⁾



Technical challenges of off shore wind new build²⁾

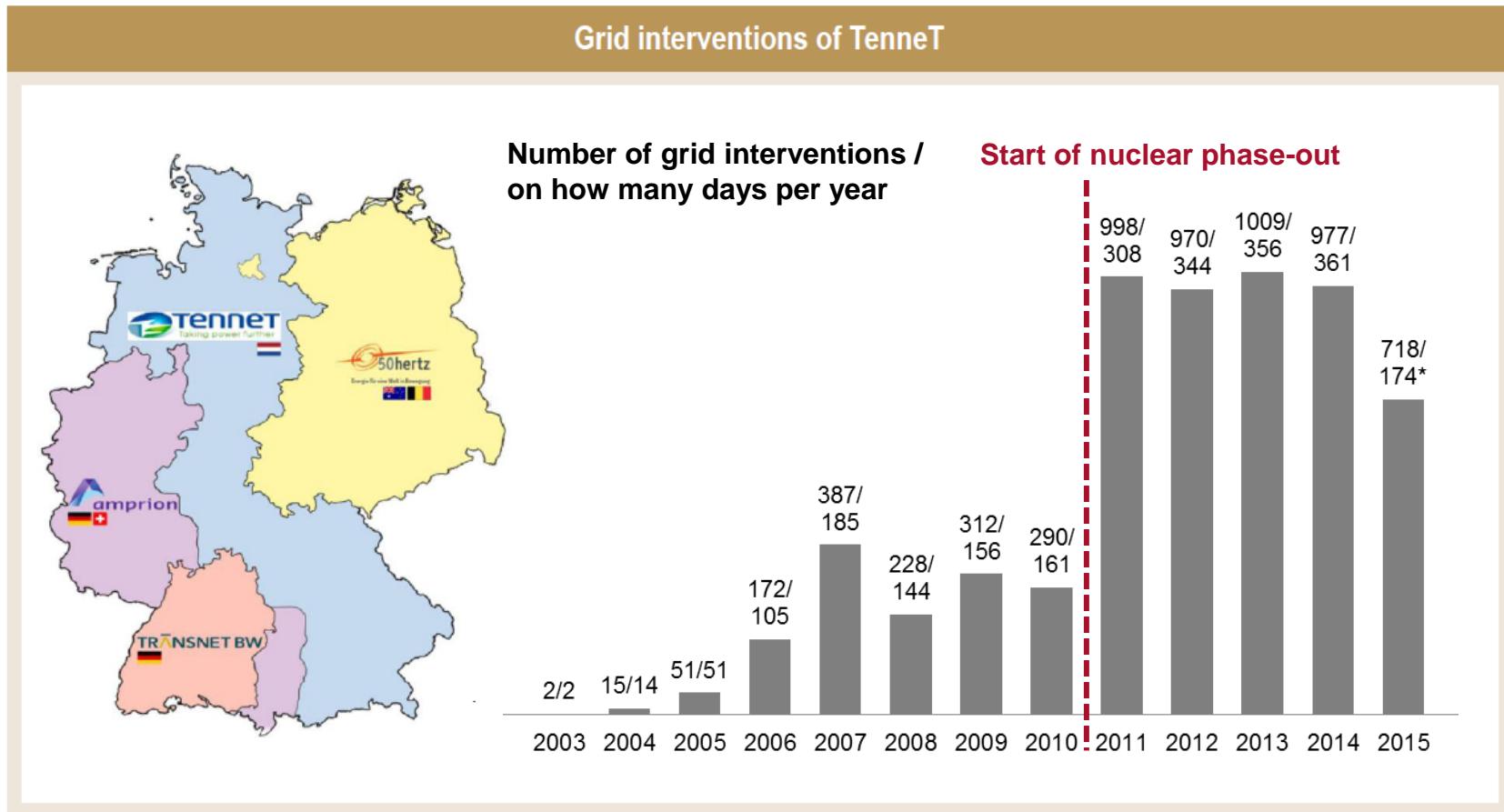


Decentralized renewables reducing mid-day peak of wholesale prices³⁾



Demand and supply on 25 May 2012 (in GW)

What does “decentral” even mean?



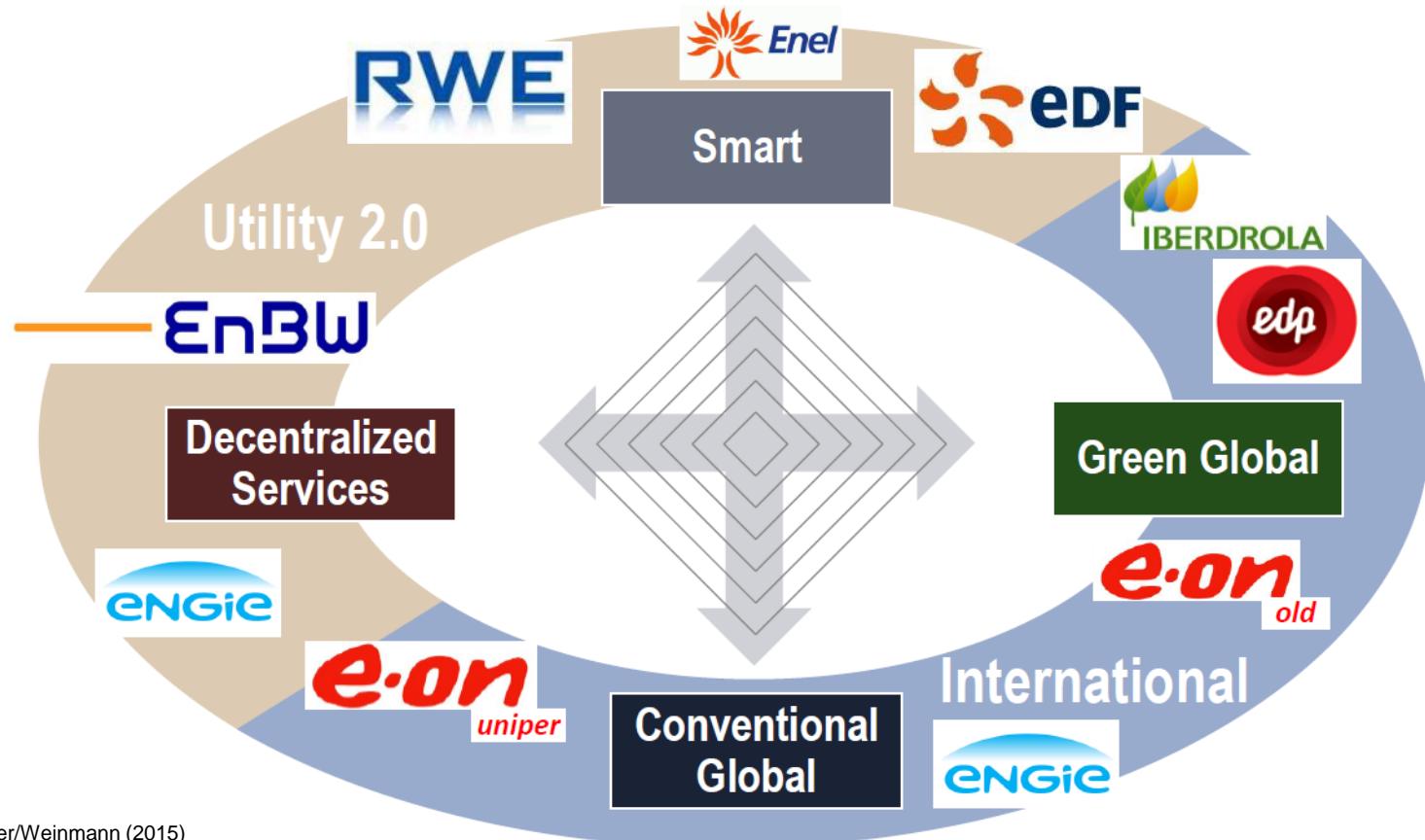
Source: TenneT (2015); *January – June 2015



Source: www.karrierebibel.de

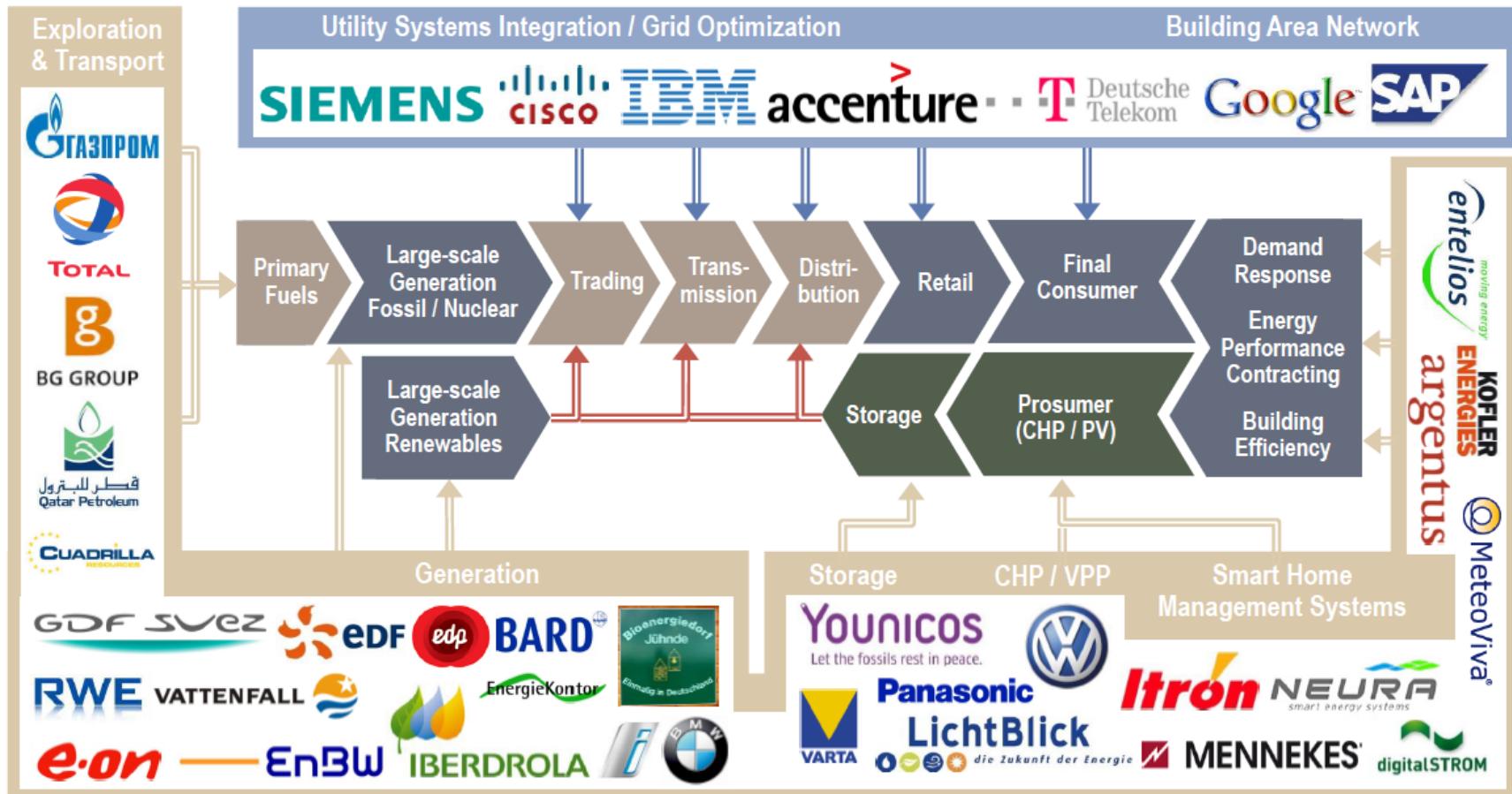
Megatrend 3: Digitalization

Chances for utilities – Which direction to choose?



Source: Burger/Weinmann (2015)

Digitalization – What does it look like?



Source: Burger/Weinmann (2014)

**Let me try
to wrap it up...**

Digital transformation is happening right now

Increasing decentralization

- + Expansion of decentralized renewable energies and CHP
- + New technologies (Smart-Meter, E-Mobility)
- + Increasing complexity of wholesale markets
- + Demand response management
- + Changing customer needs to individual services with flexible products and systems (decentralized energy management)



Digitalization, the next big step

- + Digital networking of decentralized generation units (VPP, balancing energy pools)
- + Intelligent control technologies
- + Digital processes and trading systems
- + Big Data Management & IT-Security
- + Platforms
- + Blockchain

What are the chances for municipal utilities from these megatrends?

Chances for municipal utilities from these megatrends

The market as it is

- + The bulk of decentral (renewable) power plants are owned by groups of individuals (47 %) rather than traditional utilities (12 %).
- + The individuals who own the plants are usually non energy experts.
- + There are millions of small, decentralized energy plants, which need to be connected, operated and controlled to avoid brown- and blackouts within the grid.

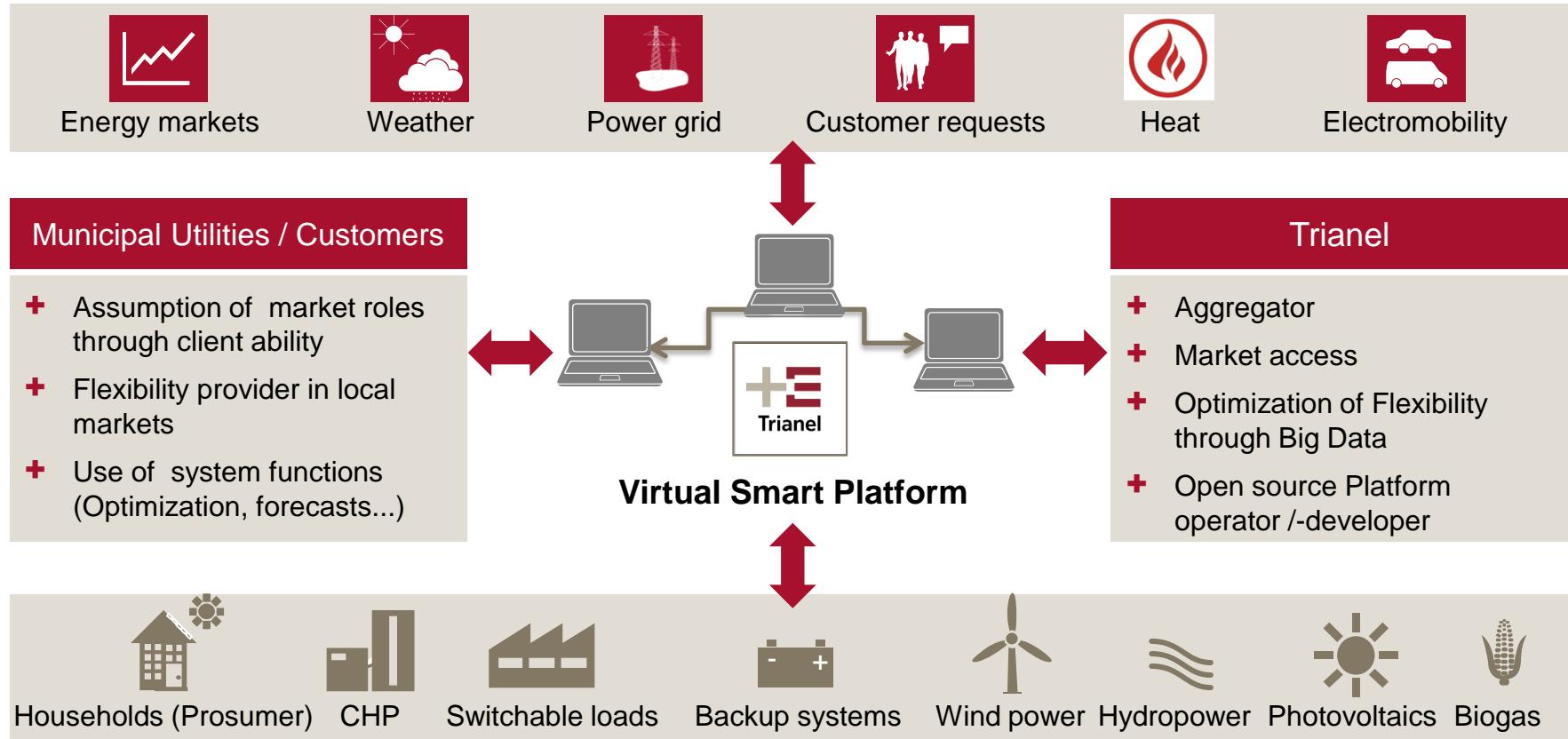


Chances for municipal utilities

- + Manage, connect and dispatch large number of decentralized (renewable) power plants.
- + Develop and market further services such as:
 - + Forecasting of power generation from wind and PV plants
 - + Balance group management
 - + Energy trading
 - + Invoicing

In a new energy world, municipal utilities need to become digital utilities to face the future challenges.

Our chance: Virtual Smart Platform



For more info about Trianel in France: www.trianel.fr

The homepage features a large image of wind turbines against a blue sky with white clouds. Overlaid text reads: "La vente directe d'énergies renouvelables: nous sommes prêts. Et vous?" Below this, a red button says "Oui, j'aimerais en savoir plus sur la vente directe pour mes installations EnR." A smaller text box below it says "Inscrivez-vous gratuitement. Nous vous contacterons prochainement." At the bottom left, another text box says "Pourquoi Trianel est-il le partenaire idéal?"

The page has a red header with the Trianel logo and navigation links: Accueil, Trianel, La vente directe, Contactez-nous, English. The main content is titled "Vente directe d'électricité". It discusses the decree 2016-682 and the new mechanisms for supporting renewable energies. It also mentions the end of the Obligation d'Achat and the study of alternatives for their commercialization. To the right is a sidebar titled "Trianel sur Twitter" showing tweets from @TrianelFrance.

Vente directe d'électricité

Suite à la parution du décret n° 2016-682 du 27 mai 2016 relatif à l'obligation d'achat et au complément de rémunération, les nouveaux mécanismes de soutien aux énergies renouvelables sont maintenant en place. Dans ce contexte, nous proposons des solutions attrayantes aux exploitants d'installations photovoltaïques, éoliennes, de biogaz et de biomasse.

Contactez-nous également à propos de vos installations arrivant en fin d'Obligation d'Achat. Nous étudierons ensemble les meilleures alternatives pour leur commercialisation.

Trianel sur Twitter

#ventedirecte pour les #EnR en France: c'est parti!! Le décret complément de rémunération a été publié ce week-end [lefigrance.gouv.fr/affichTexte.do...](#) 30 May

Hâte de rejoindre "#Romowind and friends" sur le terrain et sur les bancs des supporters le 3 juin ! [twitter.com/Emilie_Pires/a...](#) 27 May

Retrouvez @TrianelFrance jeudi 2 juin à Berlin au programme de la conférence @OFAEnR et vendredi 3 juin à Meudon pour #footoien [feeasso.org](#) ! 27 May

D'après @RoyalSegolene, publication imminente du décret complément de rémunération. Nous sommes prêts ! #PV #éolien [twitter.com/RoyalSegolene/...](#) 20 May

[Contactez-nous](#)

Contact

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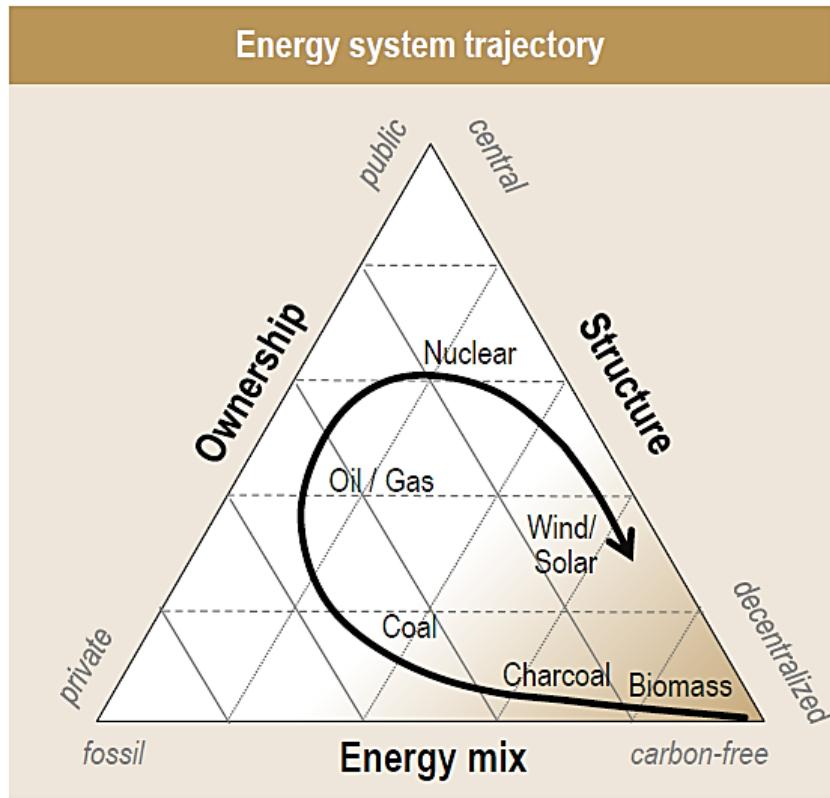
Germany

www.trianel.com



Backup

Significant increase of decentralized energy production and digital networking of generation units opens new business opportunities



Drivers

- Technological
 - Learning curves of existing technologies, e.g. grid parity PV, heat pumps micro CHP
 - Progress of ICT¹
 - New technologies, e.g. smart meters, e-vehicles
- Regulatory
 - Avoiding negative externalities due to climate change, security of supply
 - Trade off between transmissions lines and decentralized systems
- Empowerment
 - Rio 1992: Local Agenda 21
 - From consumer to prosumer

Source: Burger/Weinmann (2013); 1) Information and communication technology