



How decentralized technologies have changed business models in Europe and the world

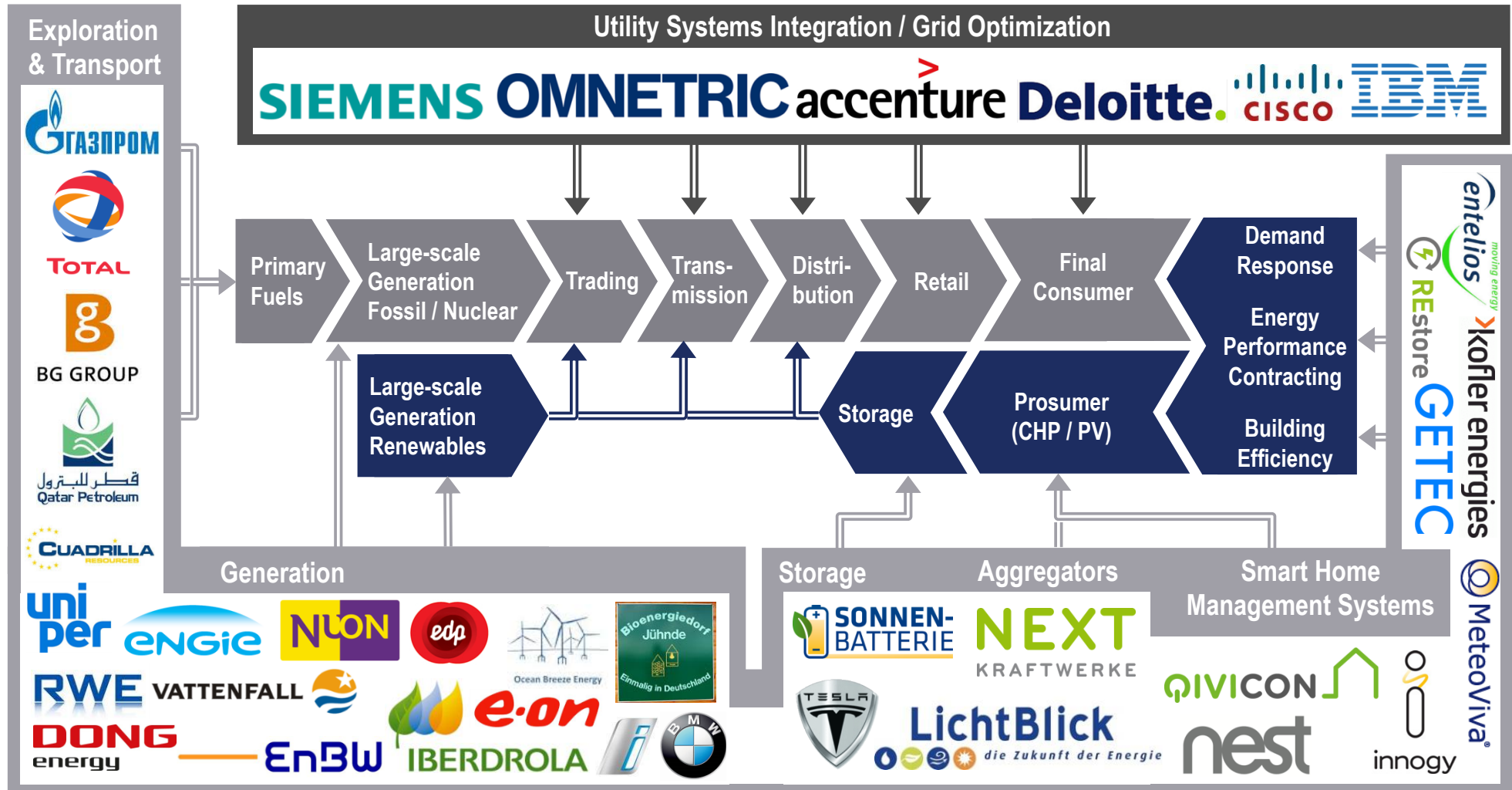
WEC, 6th European Energy Forum

Jens Weinmann
Paris, 22 May 2017

Agenda

1	New business models and a new competitive landscape
2	Counter-strategies of incumbents
3	A global phenomenon

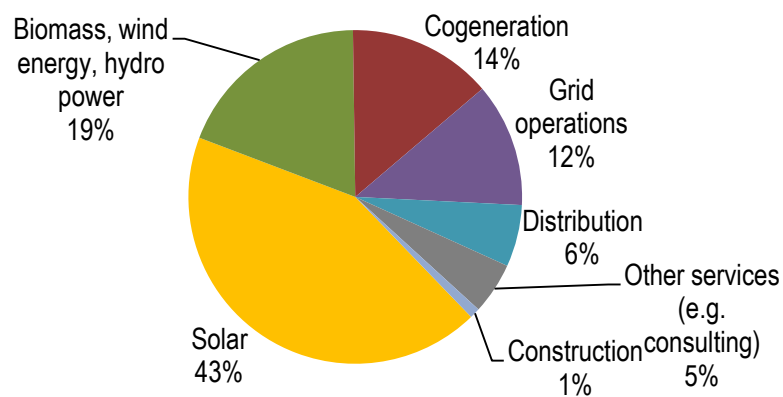
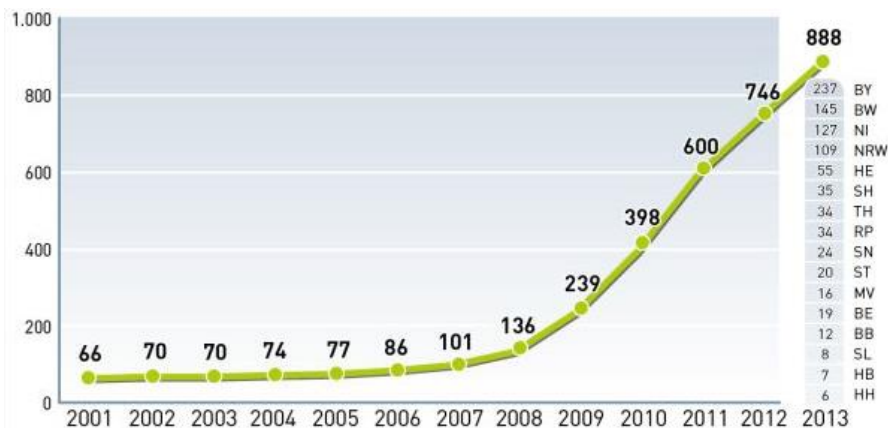
New competitors and fundamental changes in the energy value chain



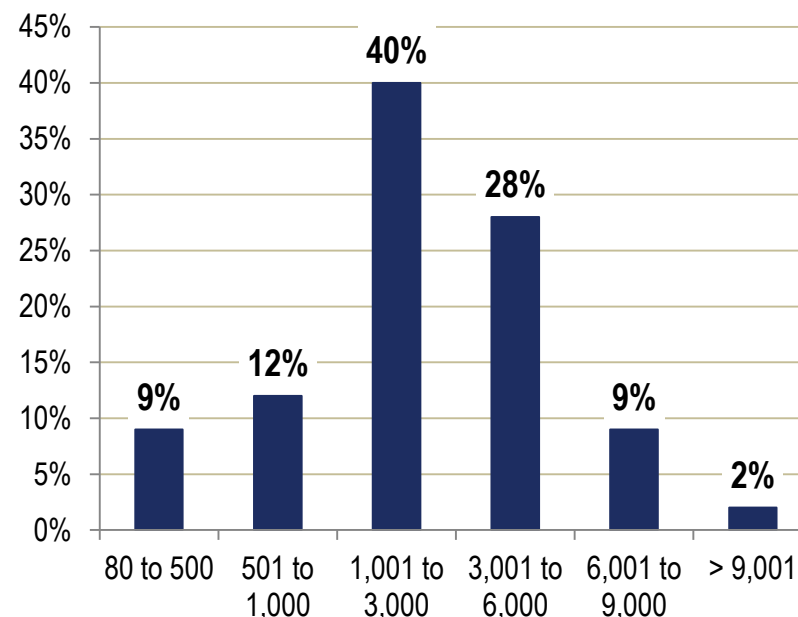
Quelle: Burger/Weinmann (2014/17)

Energy cooperatives have already invested around €1.2 bn in community power plants

888 energy cooperatives in Germany (2013)



Distribution of actual shareholdings per member (€)

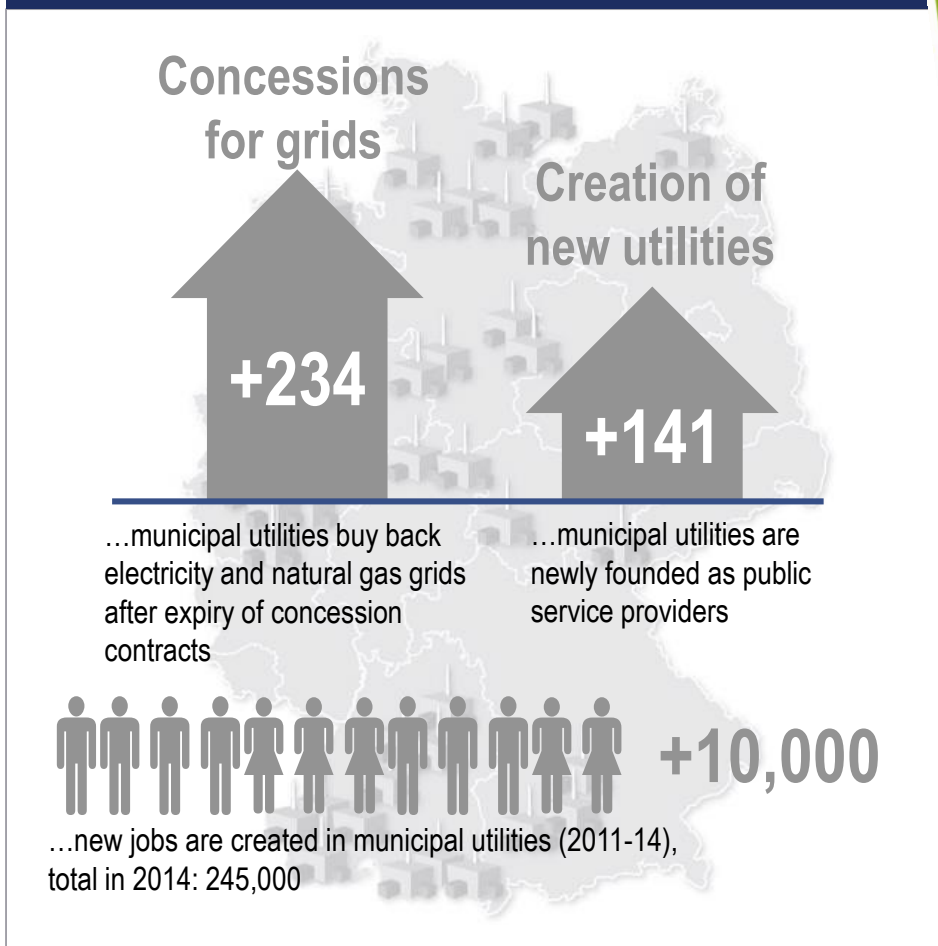


- More than 130,000 members – 90 percent of them private citizens
- Community power plants meet the annual electricity needs of 160,000 households

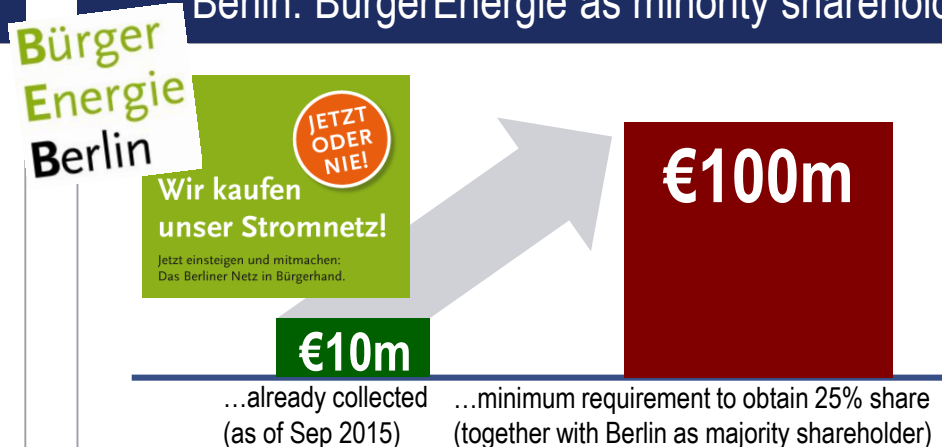
Source: Agentur für erneuerbare Energien (2014), Bioenergy village Jühnde (2014), Federal Ministry of Food and Agriculture (2014)

Recommunalization is motivated by consumer empowerment, distrust against the private sector, and the option of cross-subsidizing deficit-ridden local public transport services*

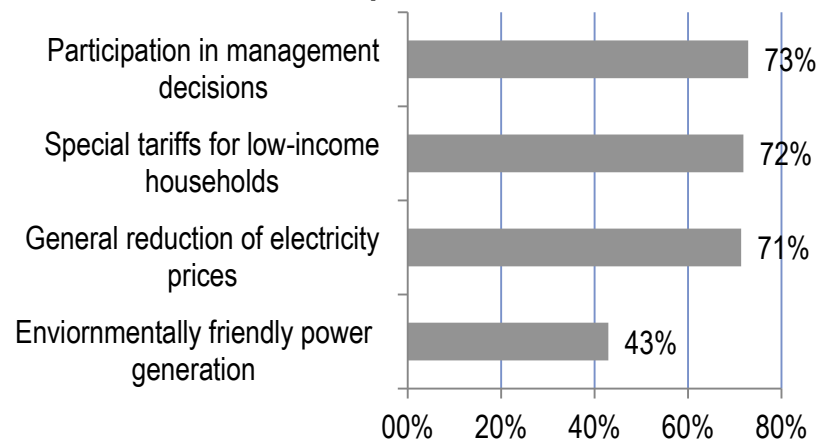
Recommunalization in Germany (2007-2014)



Berlin: BürgerEnergie as minority shareholder



Priorities of voters in the public referendum in Nov. 2013**



*See also Wollmann (2015), *Public Services in European Countries, Between Public/Municipal and Private Sector Provision – and reverse?*

**Based on a survey among 2,000 pro-recommunalization voters by the Technical University Berlin, 6 Nov 2013

Source: FAZ / VKU (2015); BMW (2014)

Civic power alliances: Bürgerwerke – more than 50 energy co-operatives have joined to sell their renewable energy

Members and their locations of Bürgerwerke



Source: Bürgerwerke (2016)



Betrieb



ID:004 Wüsteney

Photovoltaik / Dachanlage / 30kWp

Diese kleine aber attraktive PV-Anlage (29,58 kWp) wurde im Mai 2011 in Wüsteney bei Greifswald (Mecklenburg-Vorpommern) errichtet. Sie wird voraussichtlich zu 100% mit Eigenkapital finanziert.

38

Investoren



Fundingvolumen: 59 000€

Standort: Nähe Greifswald

100 %

gefunden

Noch

0 Tage

59 000€

investiert

Betrieb



ID:003 EUREF Green Garage

Photovoltaik / Dachanlage / 20kWp

Das Projekt Green Garage wird bis Juli 2013 auf dem EUREF Campus auf dem Coworking-Büro der Klimainitiative "Climate KIC" errichtet. Die 19,74 kW-Anlage wird zu 100 % mit Eigenkapital finanziert.

11

Investoren



Fundingvolumen: 18 000€

Standort: Berlin

100 %

gefunden

Noch

0 Tage

18 000€

investiert

Betrieb



ID:002 Finowfurt Alte Mühle

Photovoltaik / Dachanlage / 113kWp

Im schönen Finowfurt, einem Ortsteil von Schorfheide bei Eberswalde in Brandenburg steht die Alte Mühle, die in den Jahren 2010 und 2011 saniert und mit insgesamt vier Solaranlagen ausgestattet ist.

34

Investoren



Fundingvolumen: 65 000€

Standort:

100 %

gefunden

Noch

0 Tage

65 000€

investiert

Sortieren nach

Restlaufzeit

Reihenfolge

absteigend

Anwenden

News



5 Fragen an Daniel Uphaus, SolarGrid eG



Solarlichter für Tansania: Vorstellung der African Solar Rise e.V.

Newsletter

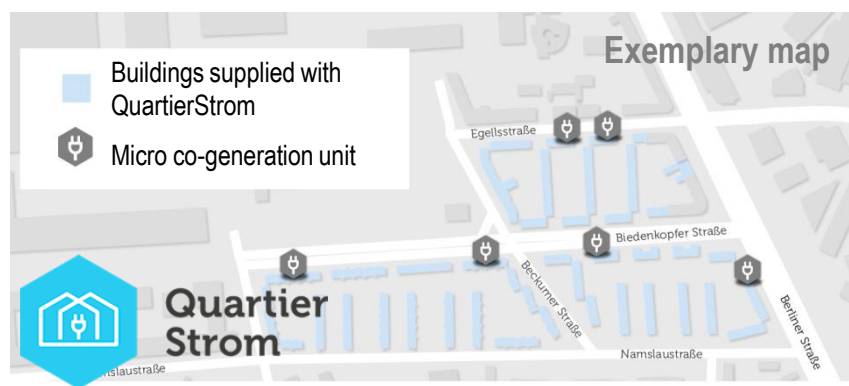
Newsletter abonnieren

MieterStrom and QuartierStrom: Already 123 decentralized power and heat projects for Berlin's urban dwellers*

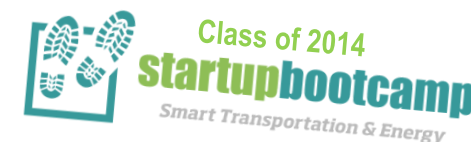
Incumbents co-operate with housing associations**



Annual consumption	GASAG Mieterstrom offer	1 st year Bonus	Vattenfall price	Savings (1 st year)
1.500 kWh	442,95 €	30,00 €	498,00 €	85,05 €
2.800 kWh	768,60 €	30,00 €	868,24 €	129,64 €
4.000 kWh	1069,20 €	30,00 €	1.210,00 €	170,80 €
5.800 kWh	1520,10 €	30,00 €	1.722,64 €	232,54 €



New entrants see the potential of urban generation



SUNRIDE

“Enable people to organize community solar installations with ease and simplicity”



* As of September 2015, Source: Wolfgang Neldner, Berlin Energie, at NetzGipfel BürgerEnergie Berlin, 12 Sep 2015

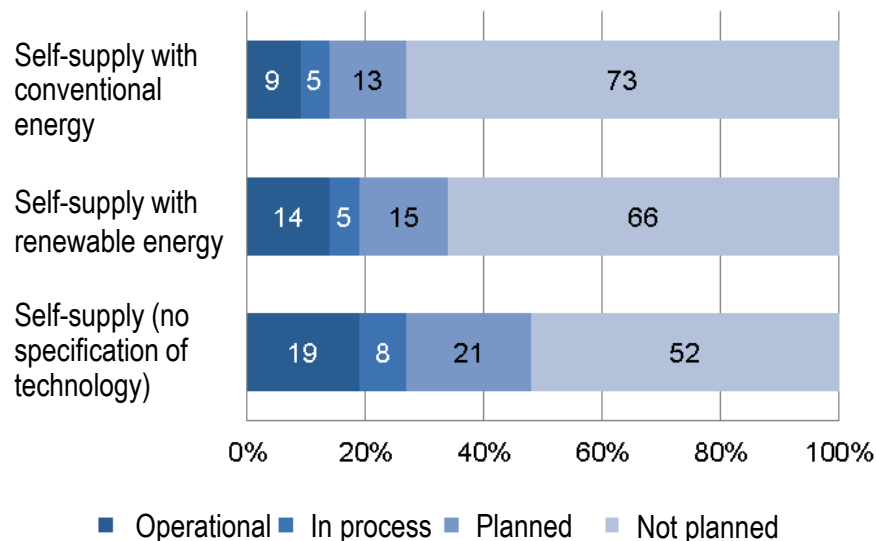
**Sample calculation by Gasag (Sep 2015), <https://www.gasag.de/Privatkunden/Produkte/berlin/Quartier-Strom/Seiten/default.aspx>

Sources: Gasag (2015), Quartierstrom.de (2015), Sunride (2015)

Industrial self-supply – if the regulatory framework does not start charging self-producers for grid services

Half of German industry will become self-suppliers

“Which measures does your company launch because of changes in the energy supply and German energy policy?”

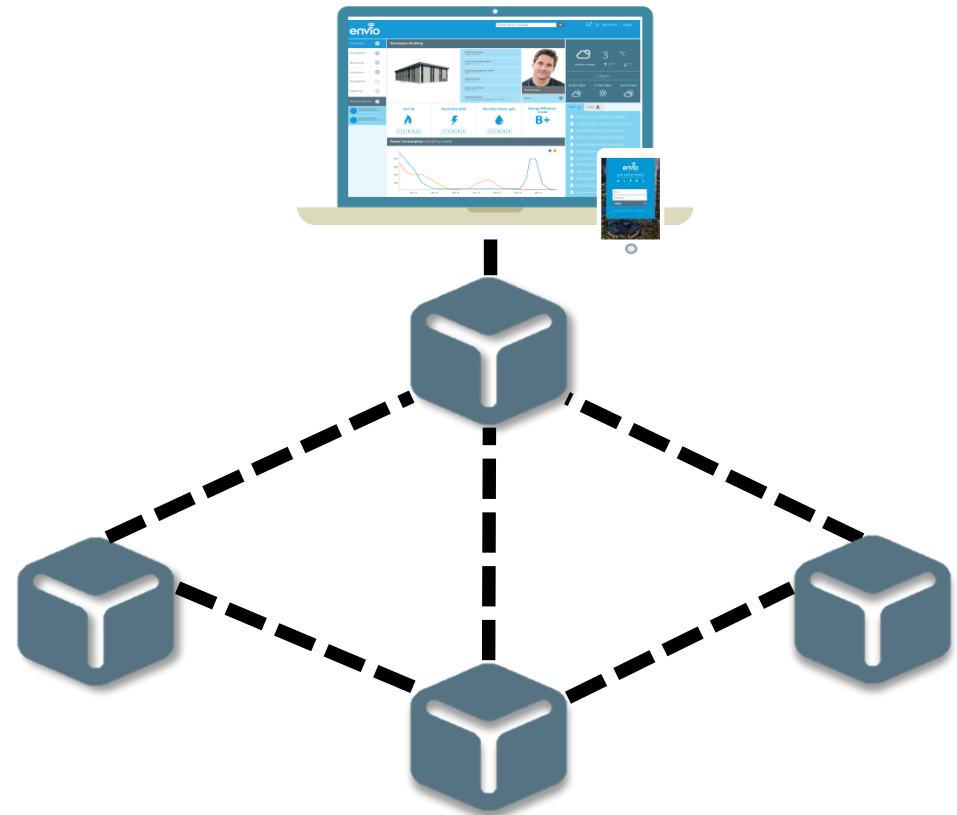


Sources: DIHK / German Chamber of Commerce and Industry (2013); Aldi Süd (2016); BMW (2014)

Examples of industrial self-supply

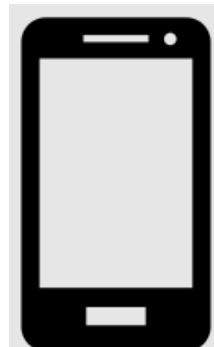


Frugal innovation: Envio cube for commercial buildings retrofit



Digital services and P2P transactions with Blockchain

bankymoon



TransActive Grid

DAILY NEWS 2 March 2016

Blockchain-based microgrid gives power to consumers in New York

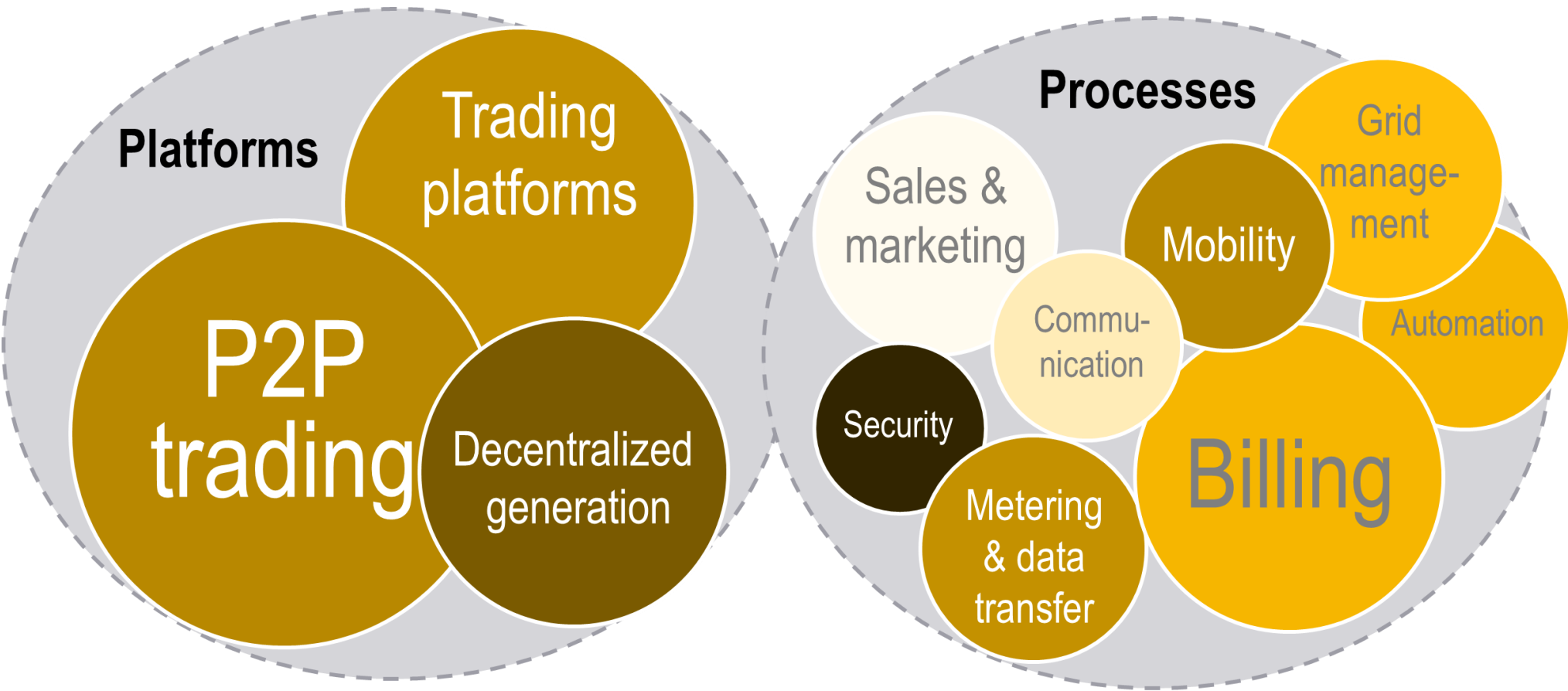


Solar power equals off grid electricity
FernandoAH/Getty

By Aviva Rutkin

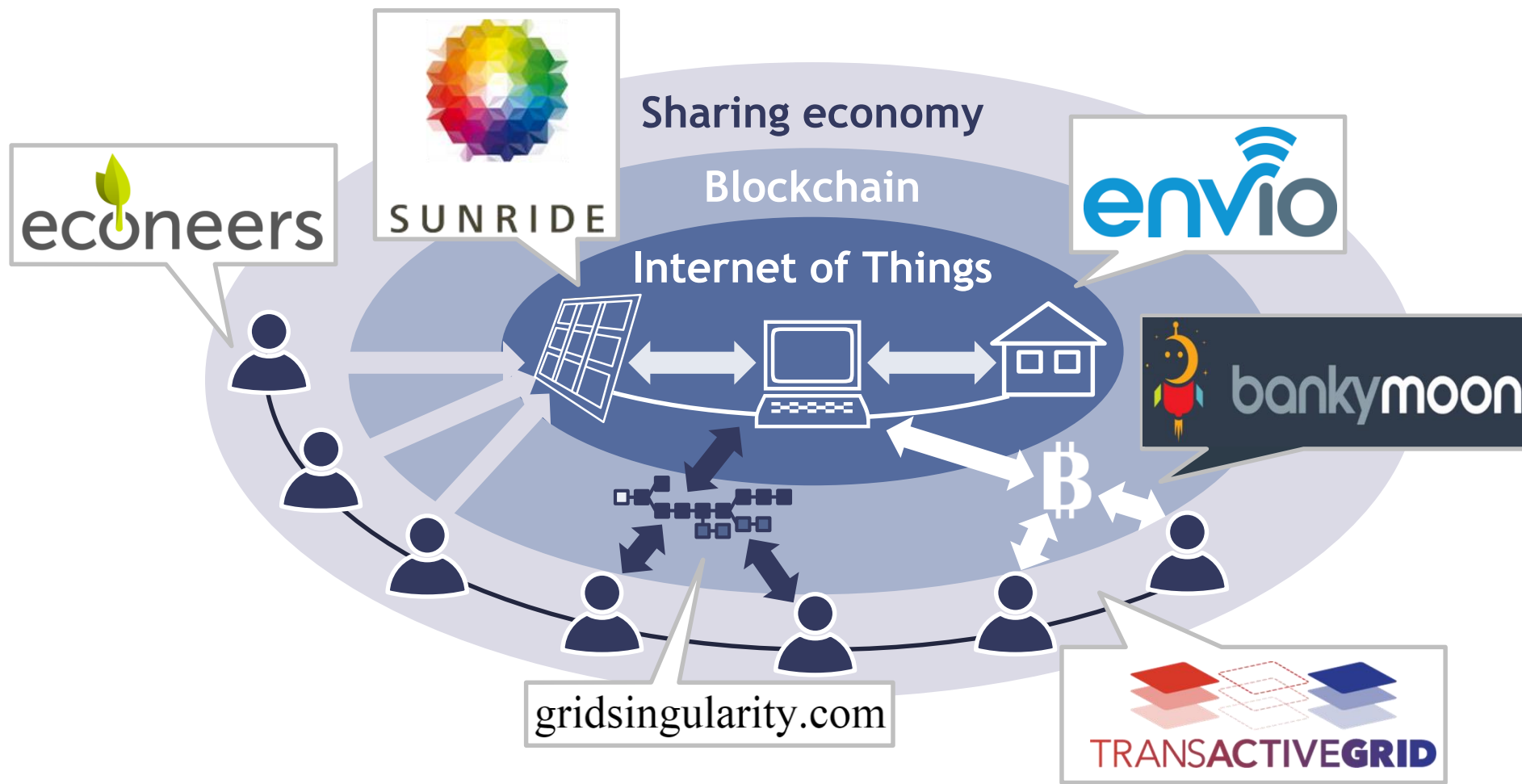
Something odd is happening on President Street in Brooklyn. While solar panels on the roofs of terraced houses soak up sun, a pair of computers connected to the panels quietly crunch numbers. First, they count how many electrons are being generated. Then, they write that number to a blockchain. Welcome to the future of energy exchange.

Dena/ESMT survey among energy executives: 107 potential use cases of Blockchain in the energy sector



Burger et al. (2016). Blockchain in the energy transition. A survey among decision-makers in the German energy industry.
 Remarks: Number of respondents: N=70. The size of each circle corresponds to the number of individual responses. The color scheme ranges from black ("Game changer") to White ("small to non-existent potential").

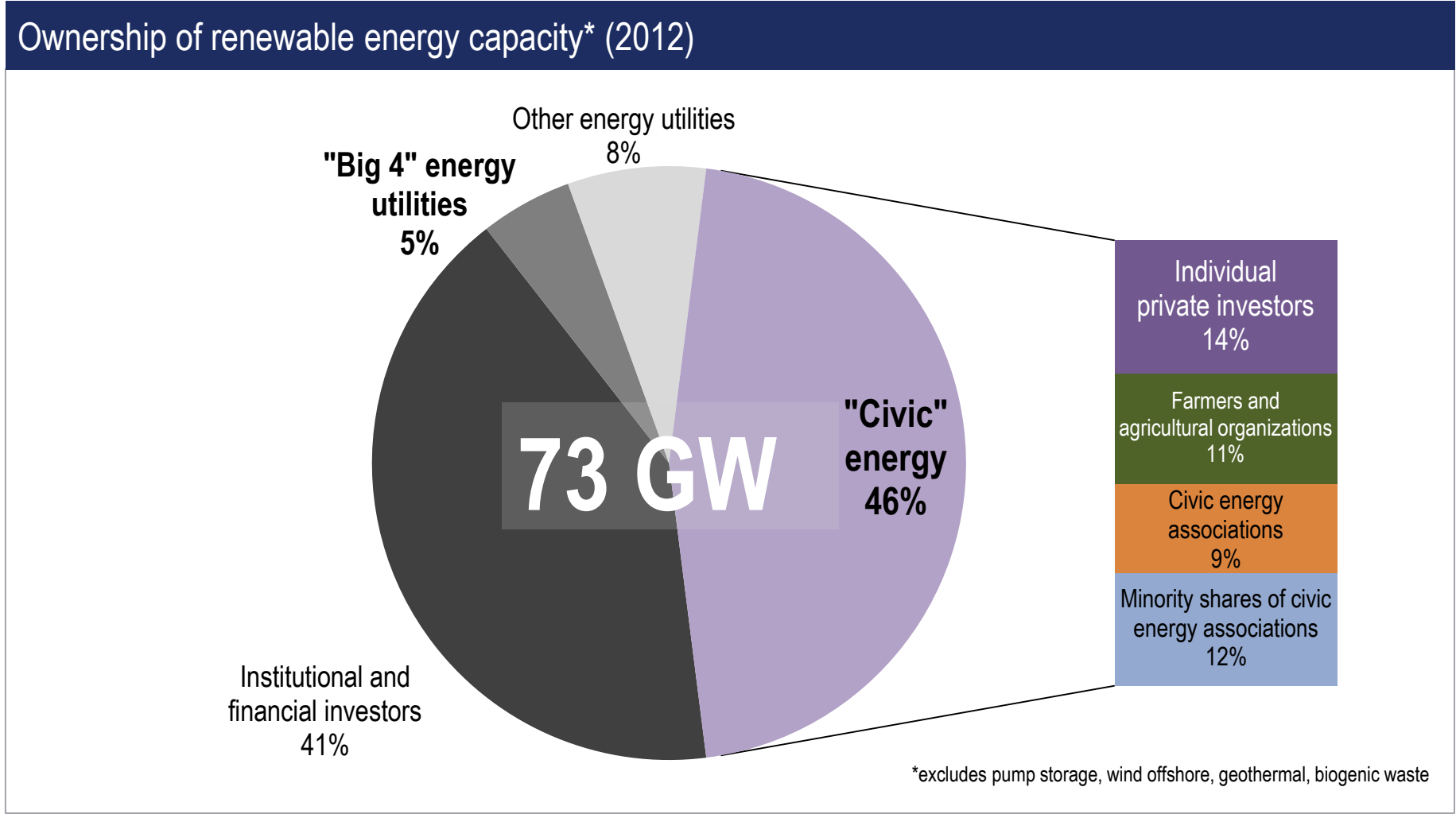
The future „Big Beyond“: Decentralized, autonomous, self-organizing micro grids



Agenda

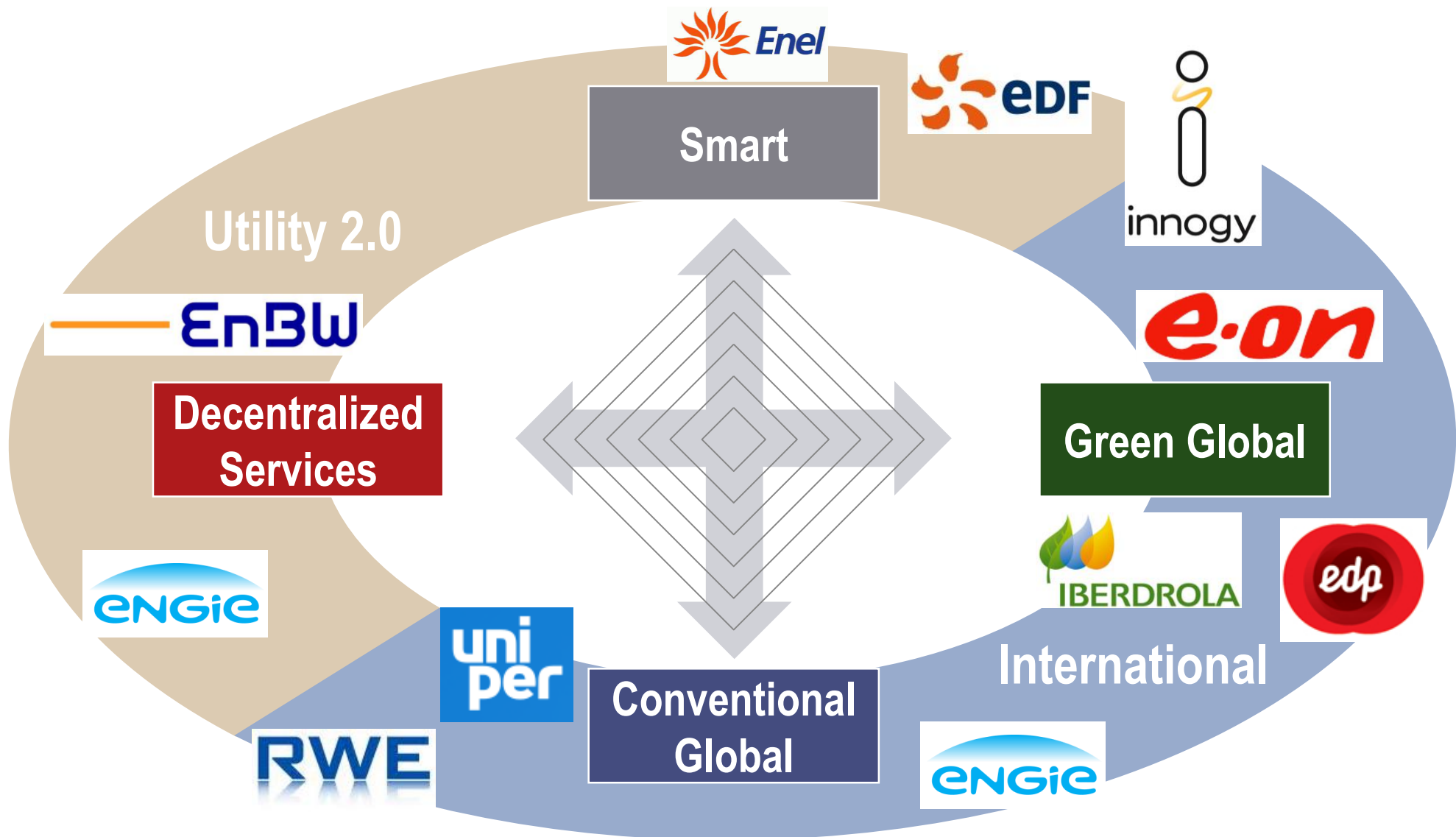
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“Civic” power is the market leader in renewable energies – German energy incumbents have entered the market too late

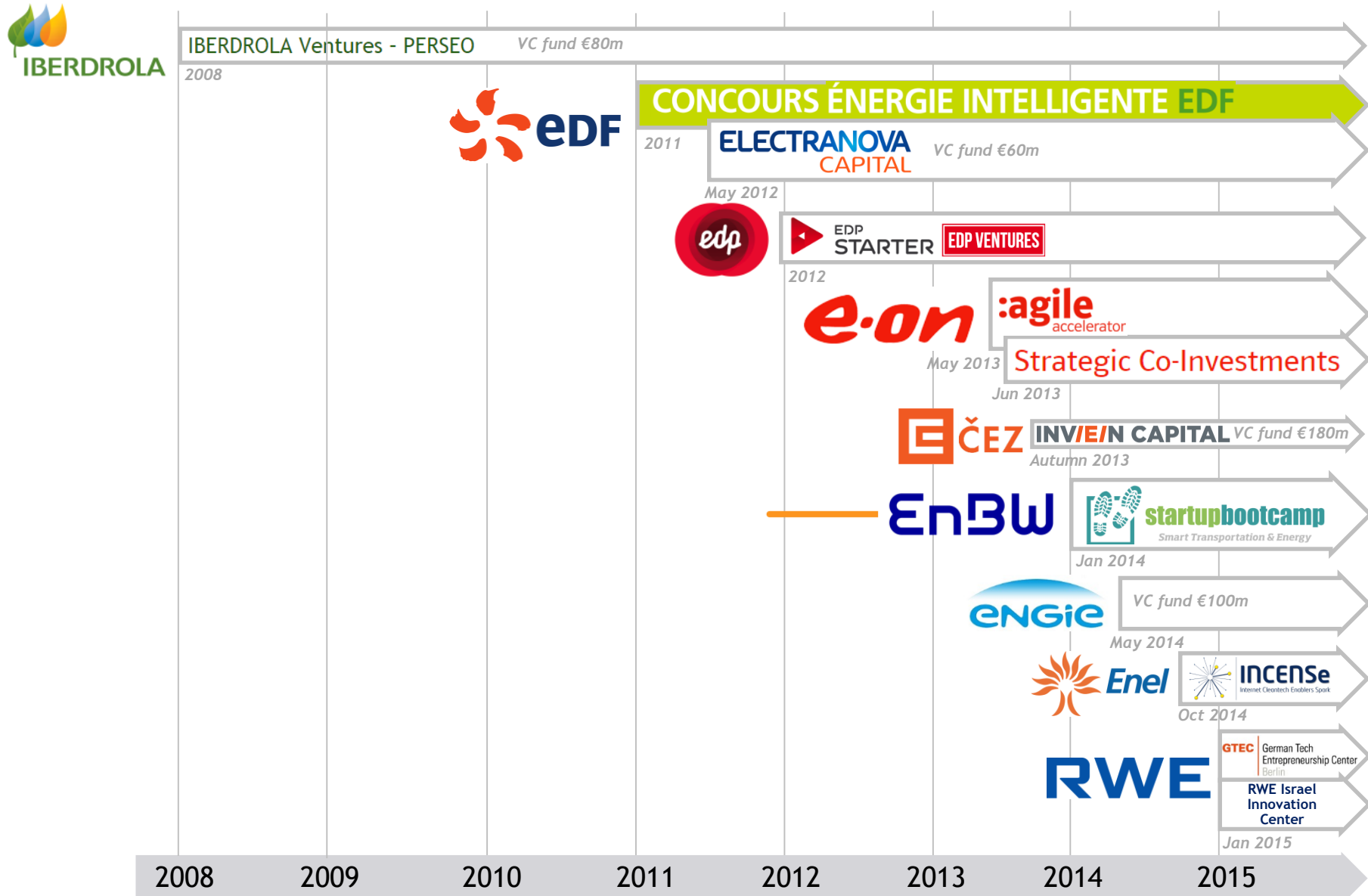


*Source: trend:research / Leuphana (2013)

Utilities evaluate different counter-strategies – Utility 2.0 and internationalization



In the search of the new future, utilities apply new types of innovation



Agenda

1

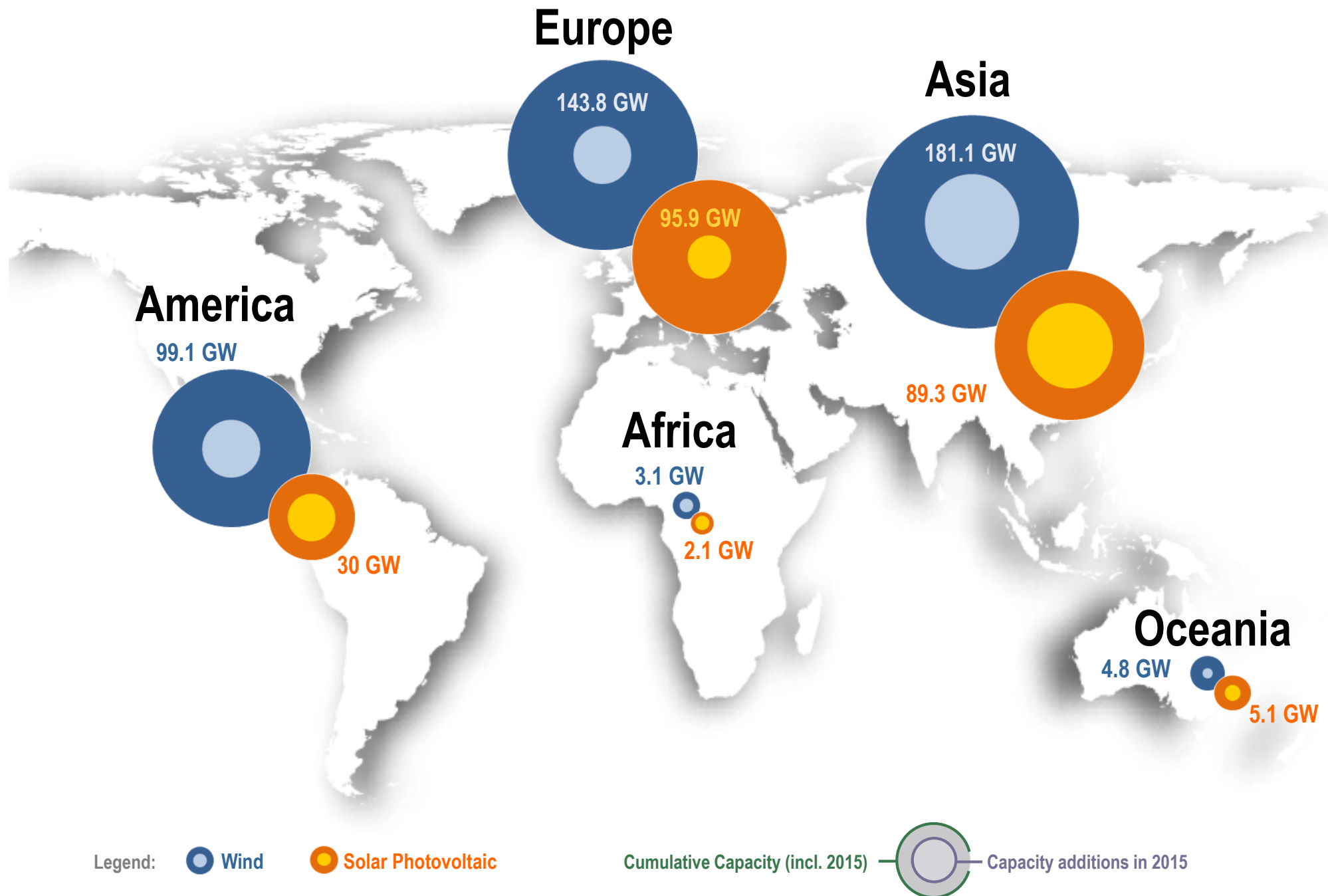
New business models and a new competitive landscape

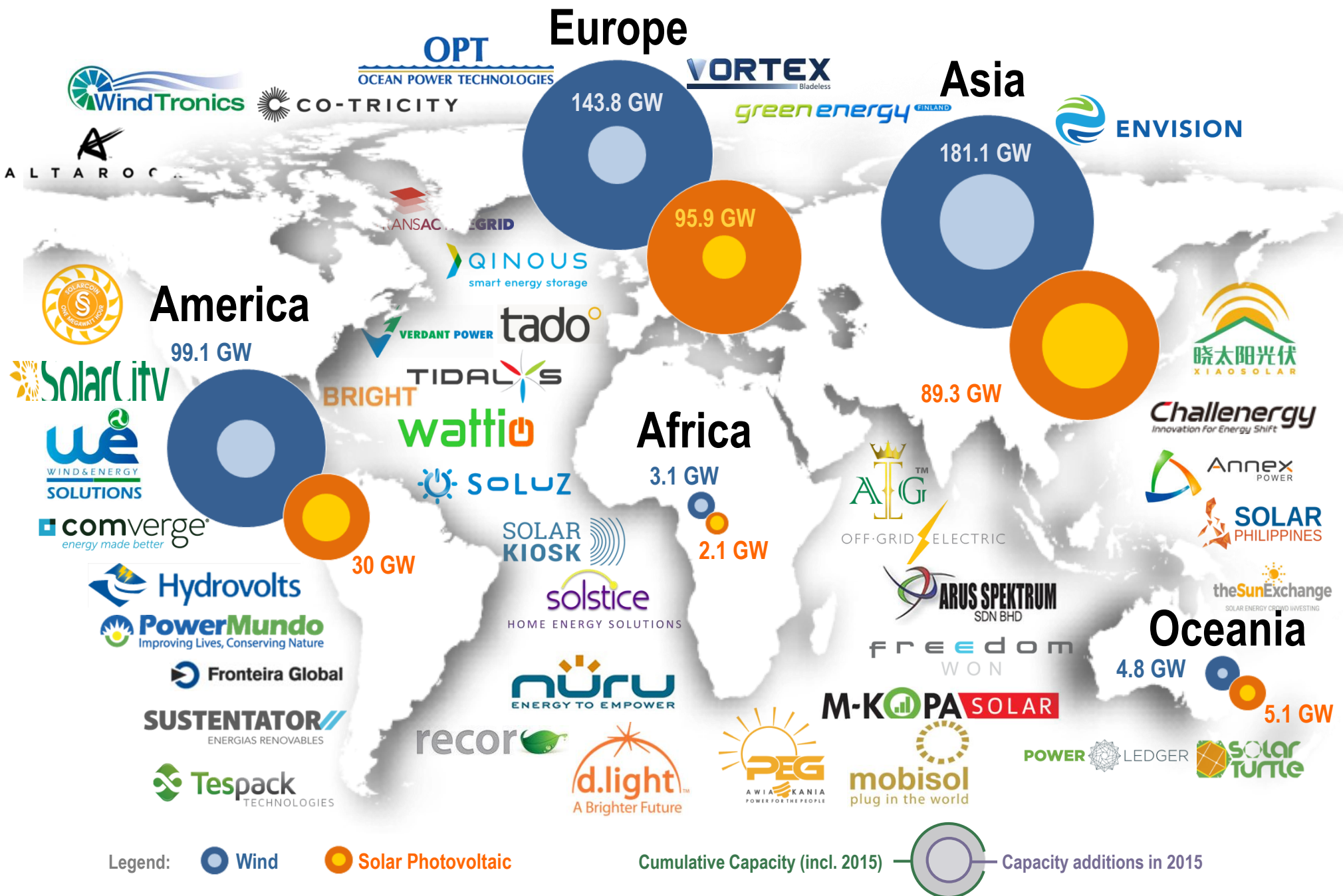
2

Counter-strategies of incumbents

3

A global phenomenon

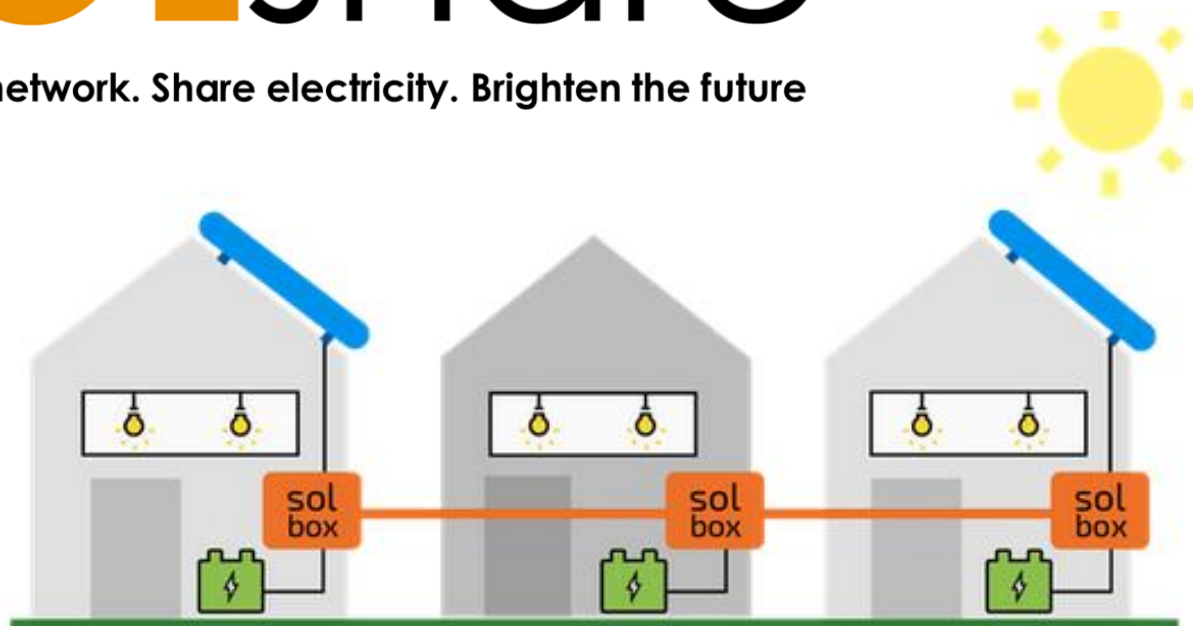




SOLshare: decentralised peer-to-peer microgrids empowering people to become solar entrepreneurs

SOLshare

Create a network. Share electricity. Brighten the future



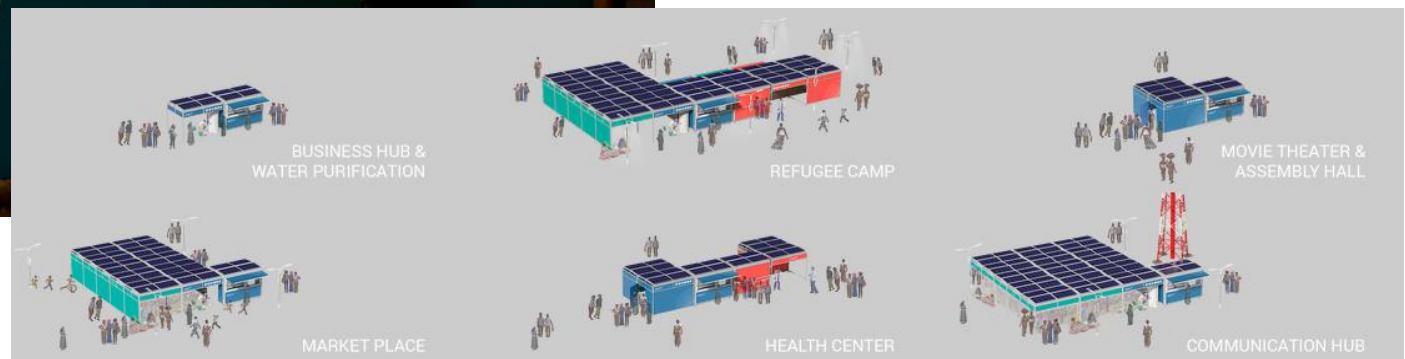
The SOLbox is our direct-current (DC) bi-directional power meter, solar charge controller and machine-to-machine (M2M) communications enabled end-user device that functions as an individual node of the electricity trading network.

Source: SOLshare (2017)

Decentralized business model based on autonomy: example Solarkiosk



- First Solarkiosk implemented in 2012
- How to bring people to kiosk?
 - Daily goods: FMCG, women hygiene, cool beverages, music
 - Services: TV, cinema, internet
- Critical success factors
 - Community acceptance and entrepreneurial spirit of personnel
 - Scalability: cost optimization via onion ring strategy, outsource retail to partner
 - Cooperation with Coca Cola and support by world bank



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thank you