



Industry's perspective on demand-side flexibility

**Stromback,
Smart Energy Demand Coalition**

***CEER workshop on Regulatory & Market
Aspects of Demand Side Flexibility***

November 18th, 2013

The Smart Energy Demand Coalition (SEDC) is an European Industry Association is approximately 45 members



www.sedc-coalition.eu

SEDC's **focus** is to promote **Demand Side Programs** such as, demand response, energy usage feedback and information, smart home, in-home and in-building automation, ... related to making demand a smart, interactive part of the energy value chain.

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PLMA
Demand Response Leadership Since 1990

VATTENFALL

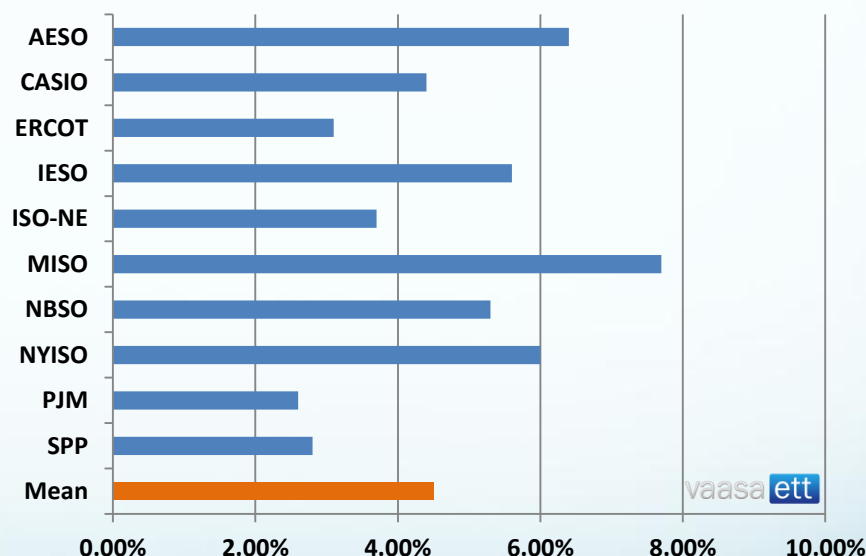
ZigBee Alliance

Demand Response – *The People Power Resource*

Why Care? USA - As of 2012, over 2* billion Euros earned by the local economy annually through Demand Response

7 years after market opening 29 GW under Demand Response programs

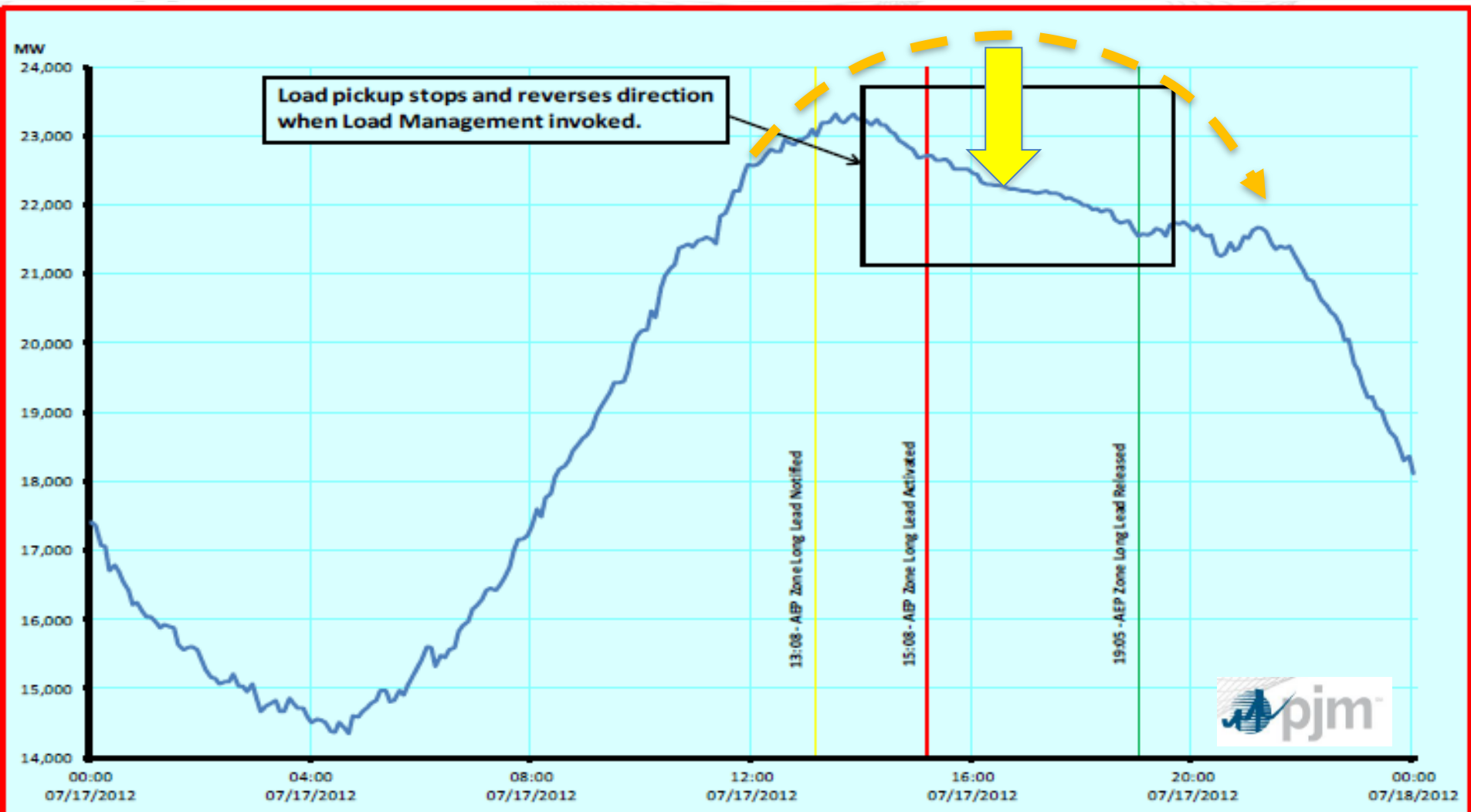
- USA Multi Billion \$ Business Direct Revenue + avoided investments in generation
- Demand Response “took off” in 2005 with Demand Side access to capacity markets
- Average estimate peak clipping 8-11% US (FERC)
- Average estimate possible peak clipping 6-13% Europe (SEDC)
- Developed & developing nations looking at DR for peak clipping purposes: Canada, Australia, South-Korea, Singapore, Japan, India, Brazil, China etc.



A total of 66 GW were under some form of control, making up 9% of total US national capacity

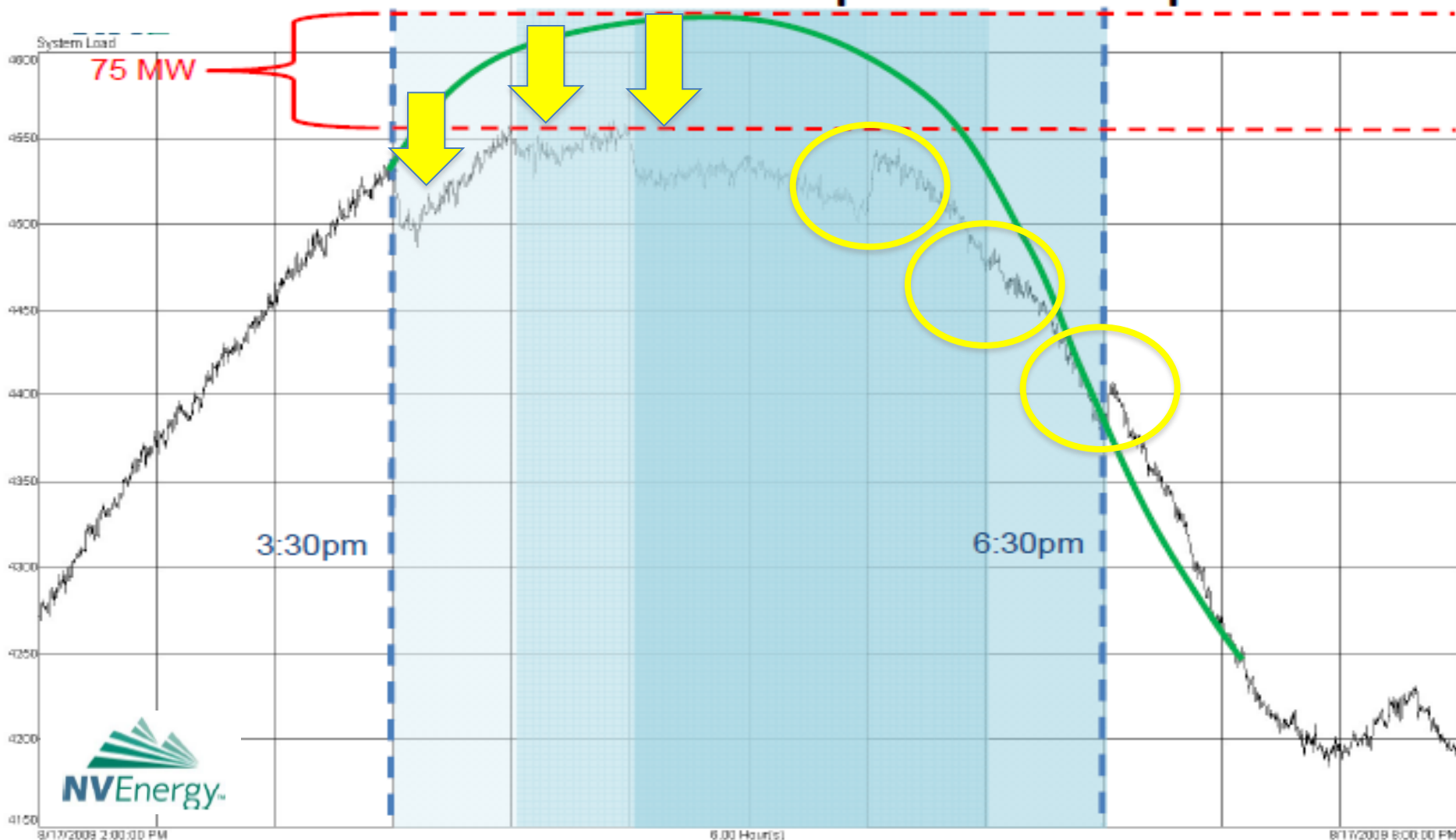
DR and Emergency Capacity

Peak Day 7/17/2012: Another 1500MW helps avoid problems



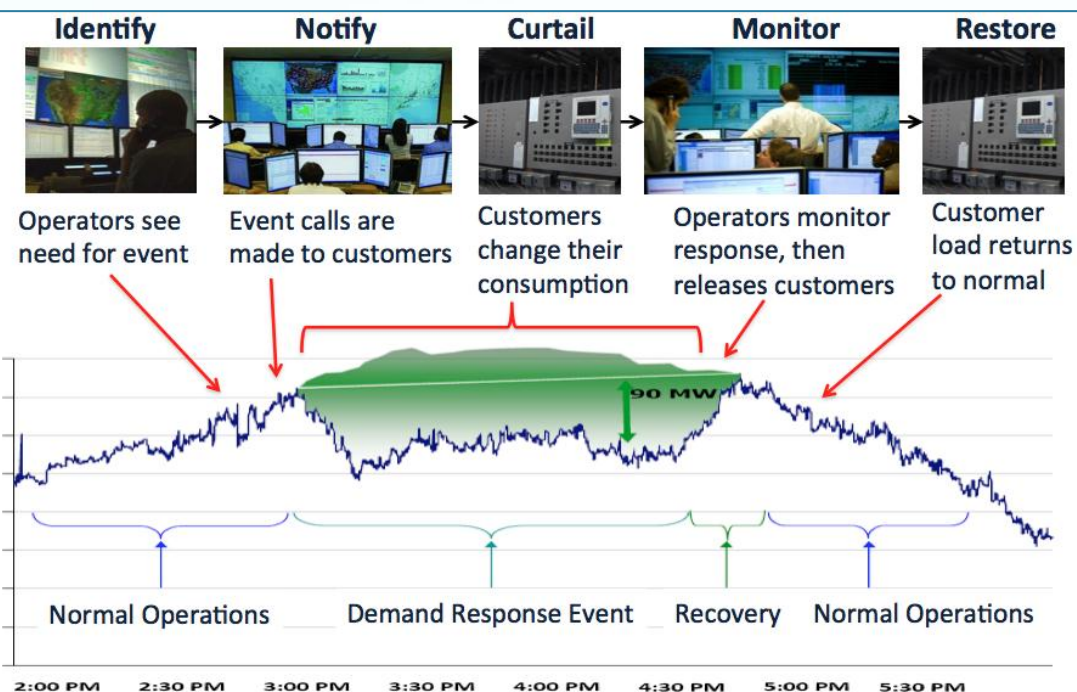
Demand Response Economic Energy Dispatch

8/17/2009: Via phased DR, 75MW of expensive generation avoided



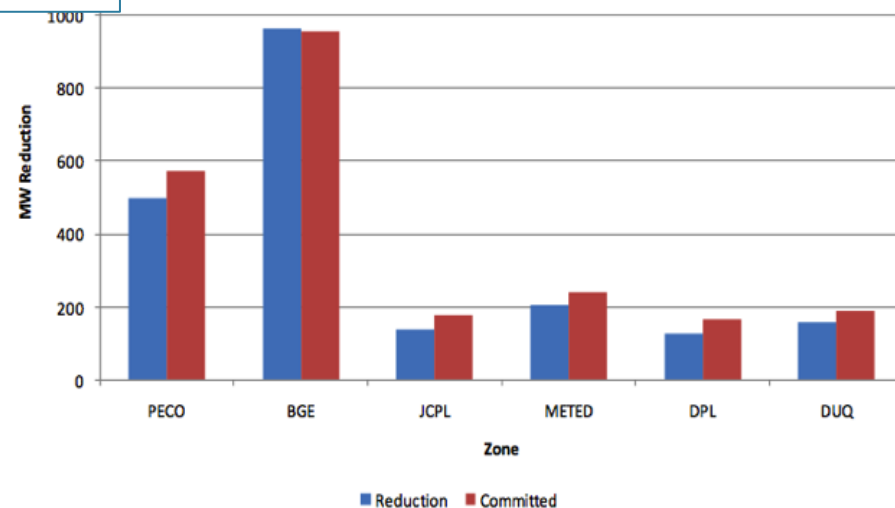
Aggregation **KEY** for successful DR

Aggregator can be third party, utility, or retail supplier



Aggregated Demand Response: a reliable source of flexible capacity

**Reduction MW vs Committed MW
July 22, 2011**



The aggregator collects multiple customers with multiple loads
 electric heating, freezers, refrigeration, fans, lighting, pumps, grinders, smelters, ...

Energy Efficiency Directive:

Art 15.8 Member States shall ensure that national energy regulatory authorities **encourage demand side resources**, such as demand response, to participate alongside supply in wholesale and retail markets.

Member States shall ensure that transmission system operators and distribution system operators, in meeting requirements for balancing and ancillary services, **treat demand response providers, including aggregators, in a non-discriminatory manner, on the basis of their technical capabilities.**

.... where their national regulatory systems so require, transmission system operators and distribution system operators in close cooperation with demand service providers and consumers, **to define technical modalities for participation in these markets on the basis of the technical requirements of these markets and the capabilities of demand response.** Such specifications shall include the participation of aggregators.

4 Steps to successful Demand Response

Step 1- Equal Access = Involve the Consumer

Access: Small industrial, commercial and residential consumers have no means of accessing the wholesale, balancing, reserves and other system services markets.

Engagement: Consumers require a clearly defined offer, which is both simple to use and contains clear benefits.

Provider: They require a party with expertise in **providing this offer** such as an independent aggregator or a retailer.

Competition law should be respected and aggregators should have clear access to consumers and to markets

Step 2 – Technical requirements = Create viable products

Products to buy and sell: In order for consumers to participate in Demand Response programs, there must be products/programs with participation rules **that fit their capabilities** and which will deliver a real service to the markets.

Product Design: It is critical that when product descriptions are created, the specifications of a range of resources are taken into account, including demand side resources.

4 Steps to successful Demand Response

Step 3 – Measurement and verification requirements

Safety and reliability: In the United States today, 29 GW of load is registered in some form of Demand Response. This is safe and reliable due to well defined and appropriate measurement and verification protocols.

These protocols are essential to ensure reliability.

Step 4 – Ensure fair payment and investment stability

As of today, the European energy markets are designed to pay for energy (kWh) not capacity or flexibility (kW). The full value of flexible resources is not reflected in market prices.

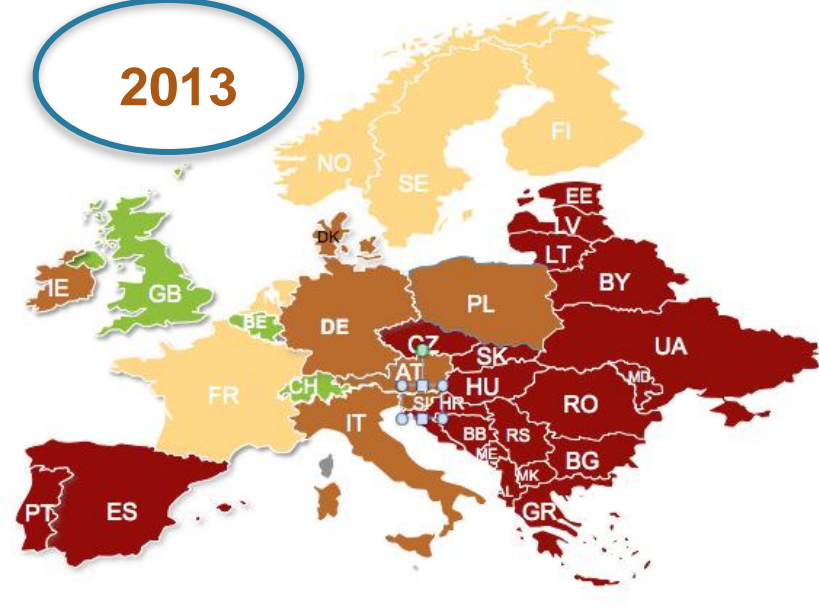
Reward Flexibility: It is essential to create market structures which reward and maximize flexibility and capacity resources in a manner which provides investment stability.

Full and fair payment: Markets should be open and transparent - all resources, including demand side resources, should be paid the full value of services provided

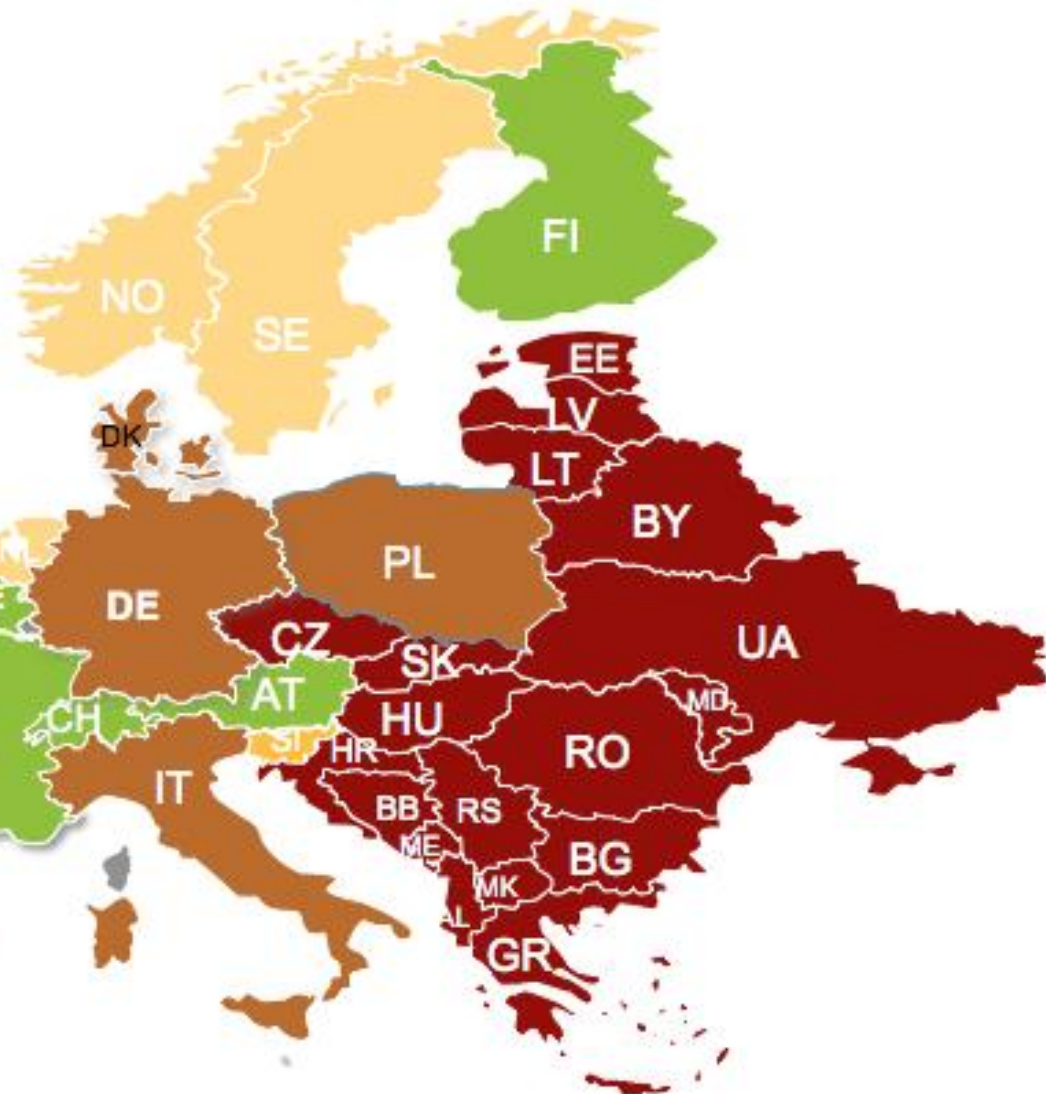
2013					
	Aggregation	Programs	Verification	Finance/Risk	Overall
Austria	0	1	1	3	5
Belgium	3	5	1	5	14
Denmark	1	0	3	1	5
	3	1	3	3	10
	1	3	3	5	12
	5	3	3	3	14
	1	3	0	1	5
	1	3	1	3	8
	1	1	0	3	5
	1	3	3	1	8
	1	3	1	5	10
	1	3	1	0	5
	0	1	0	1	2
	1	3	3	3	10
	5	3	5	5	18
	25	36	28	42	131
	75	75	75	75	300

2014					
	Aggregation	Programs	Verification	Finance/risk	Overall
Austria	3	3	3	5	14
Belgium	5	5	3	5	18
Denmark	1	0	3	1	5
Finland	5	3	3	3	14
France	5	5	3	5	18
GB	5	3	3	3	14
Germany	1	3	0	1	5
Ireland	3	3	5	5	16
Italy	1	1	0	3	5
Netherlands	1	1	3	1	6
Norway	1	3	3	5	12
Poland	1	3	3	0	7
Spain	0	1	0	1	2
Sweden	1	3	5	3	12
Switzerland	5	3	5	3	16
Overall	38	40	42	44	164
Max. Score	75	75	75	75	300

2013



2014



KEY

Commercially available

Partial opening

Preliminary development

Closed



SEDCC
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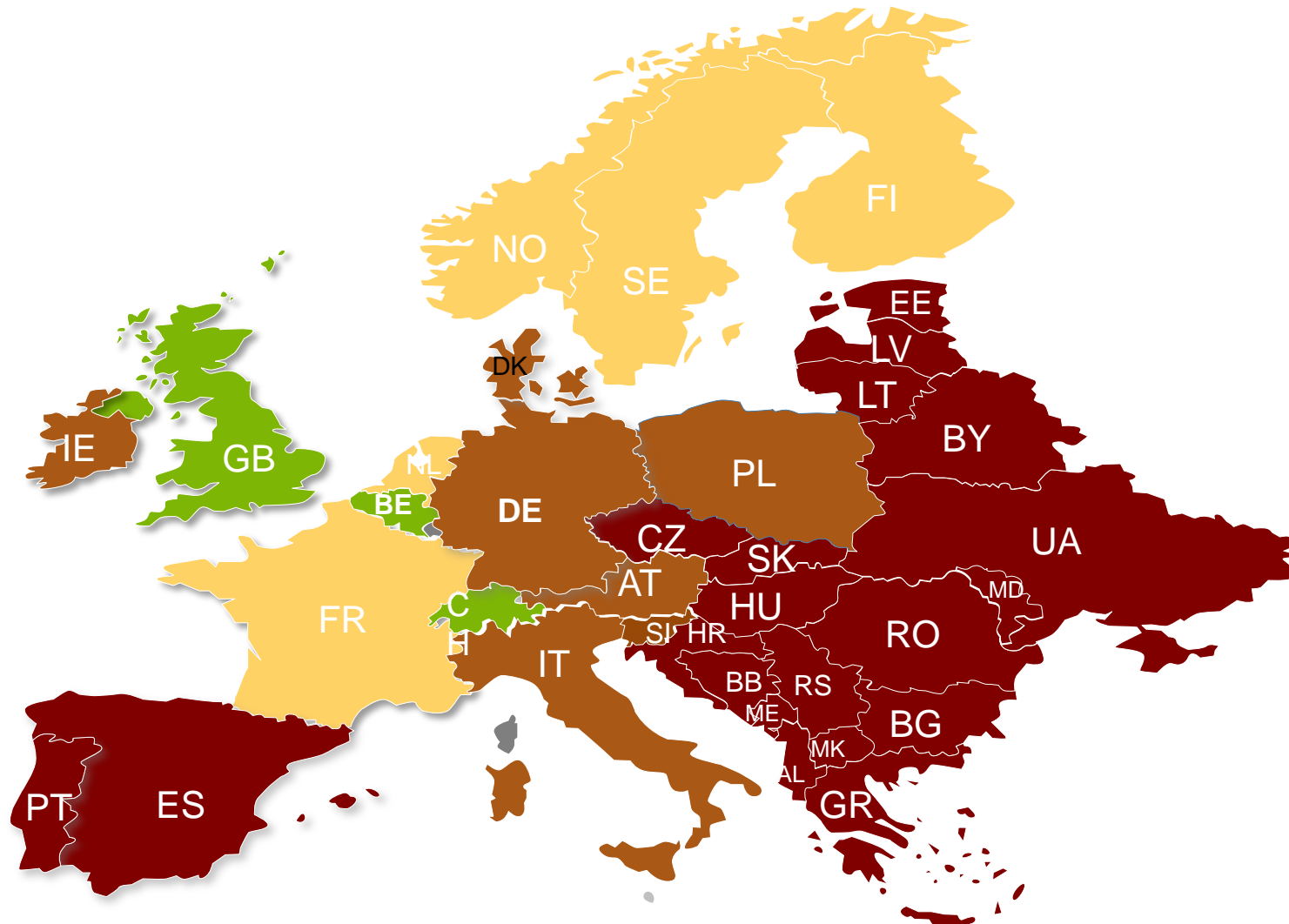
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Today?

KEY

2013



2014

Management

