

# The DSM University

*Hans Nilsson*

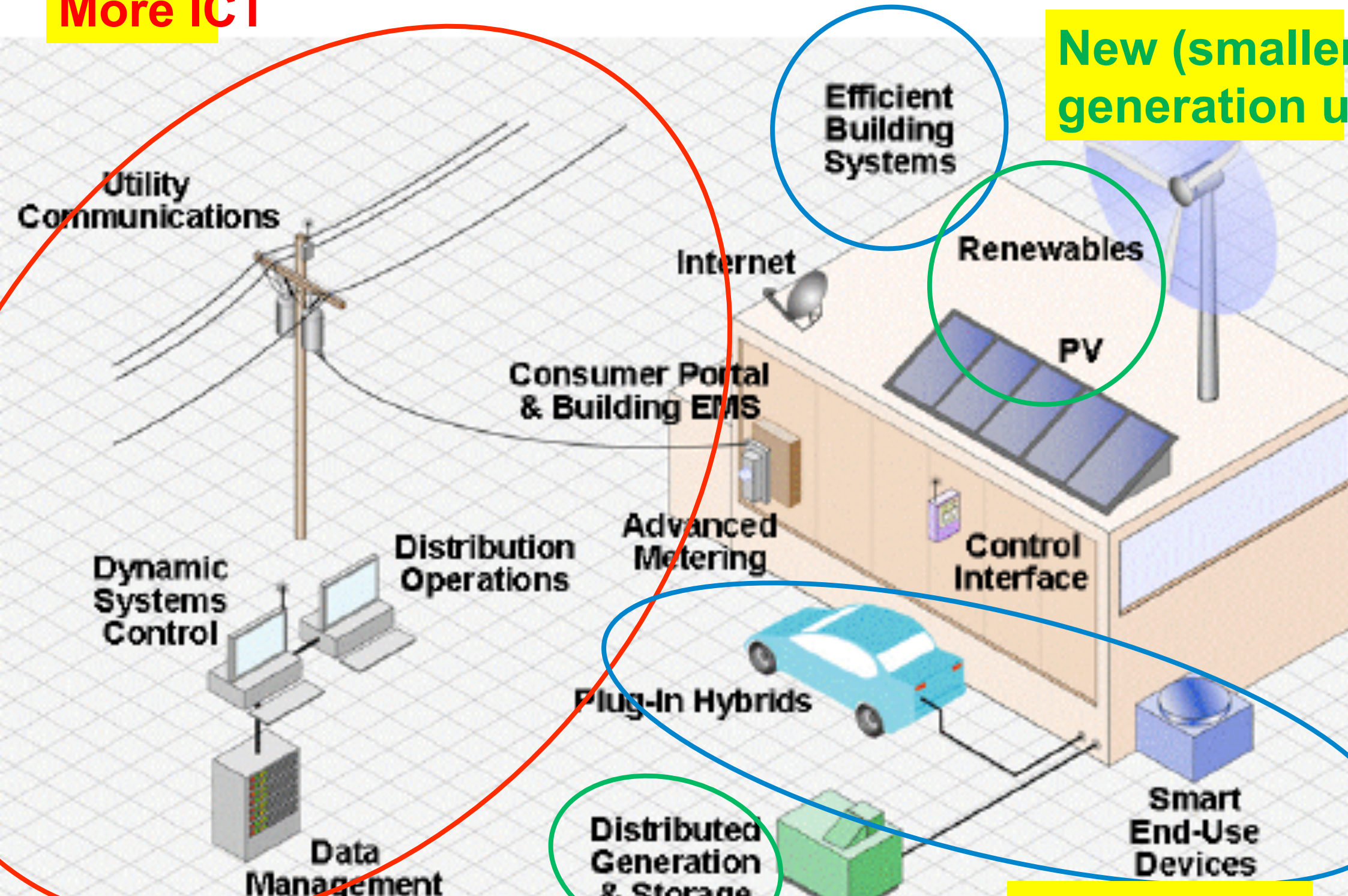
*Hans De Keulenaer*

# *We live in a period of profound changes*

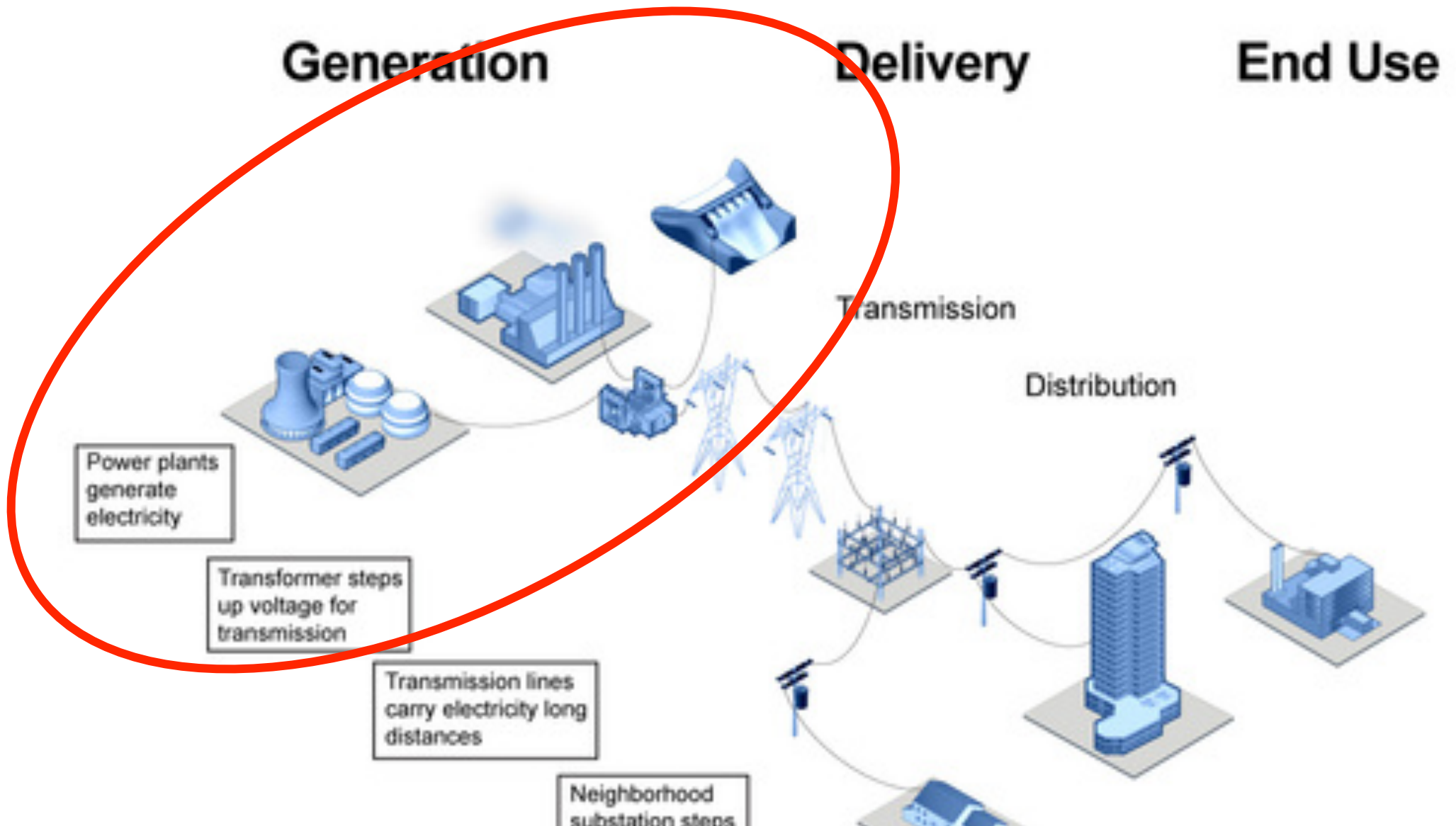
1. Technologies will allow greater participation and more choices.
2. The energy system will change from being composed from single supply units to a multitude connected in a mesh

# More ICT

# New (smaller generation u

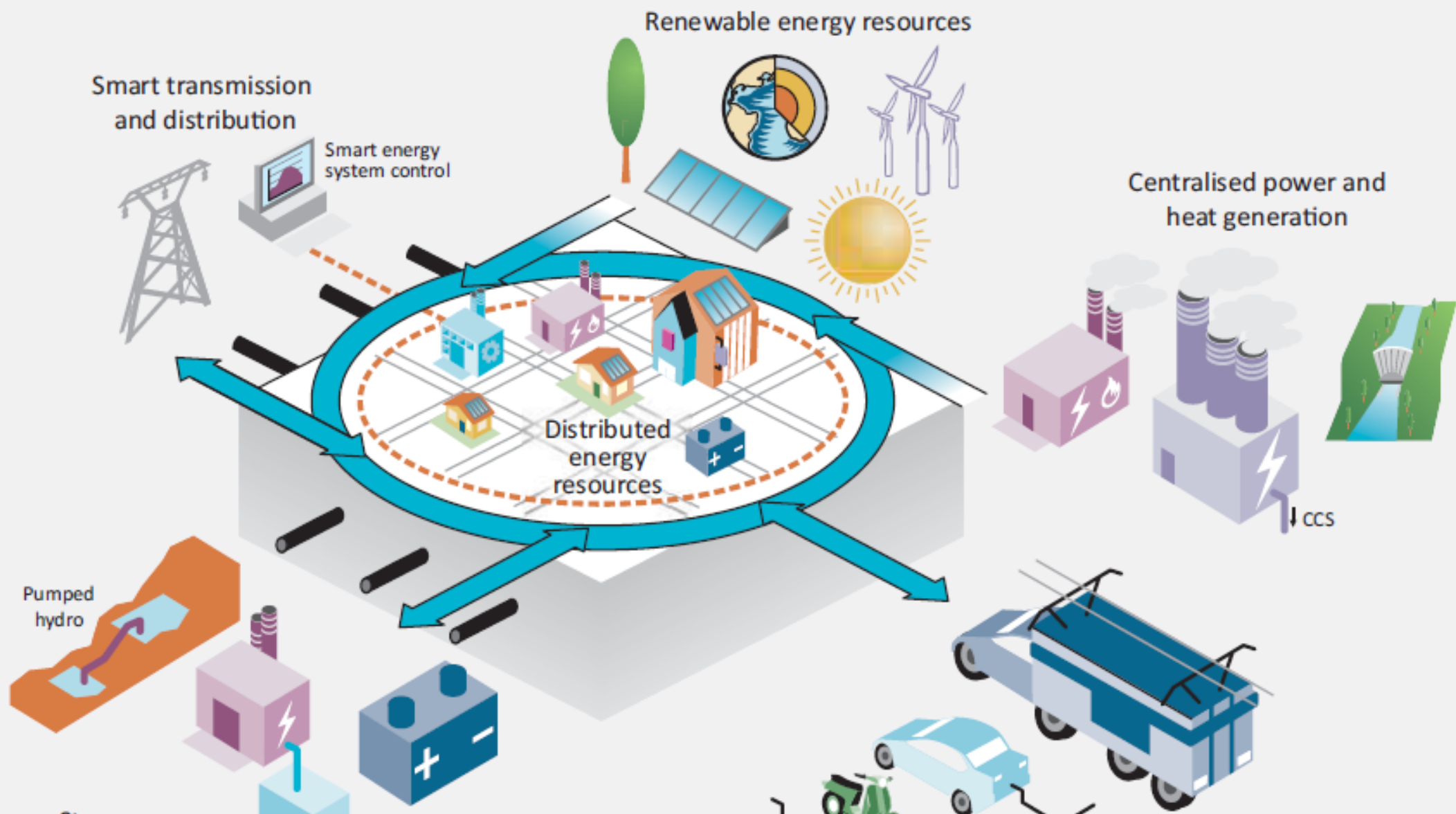


# The traditional linear system



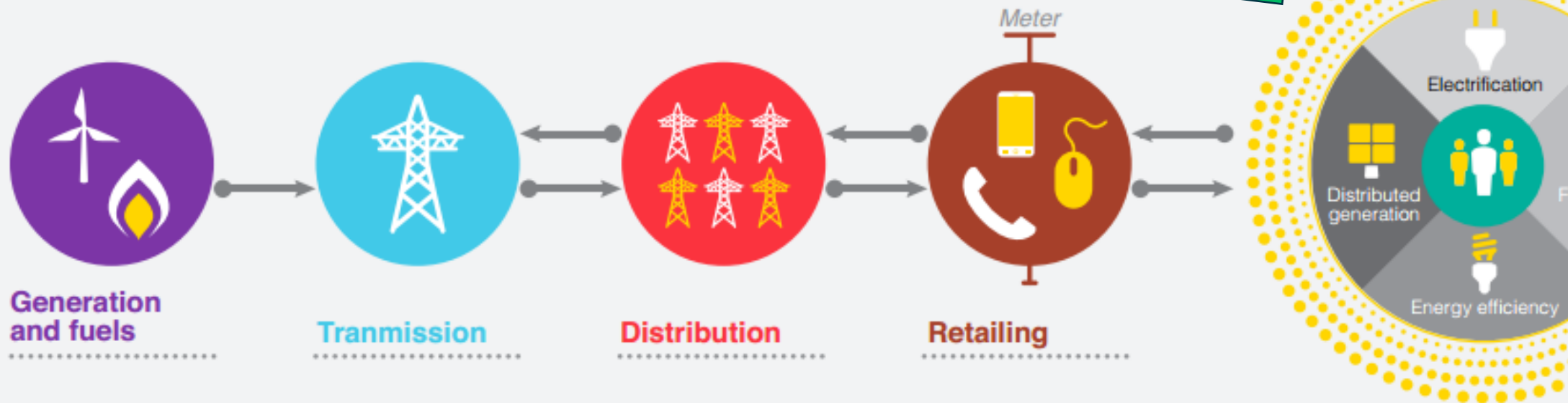
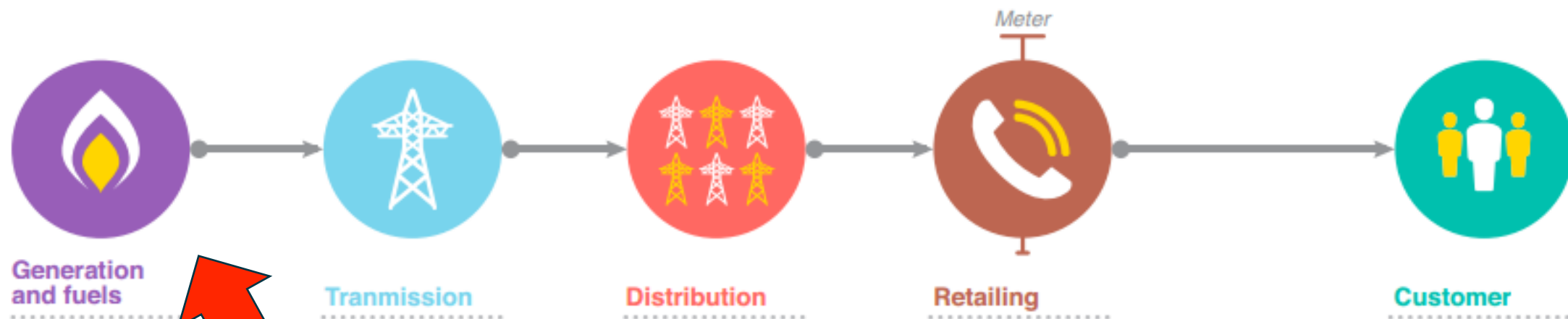
# The new mesh system

Figure 1.2 The integrated and intelligent electricity system of the future



# Business is changing focus

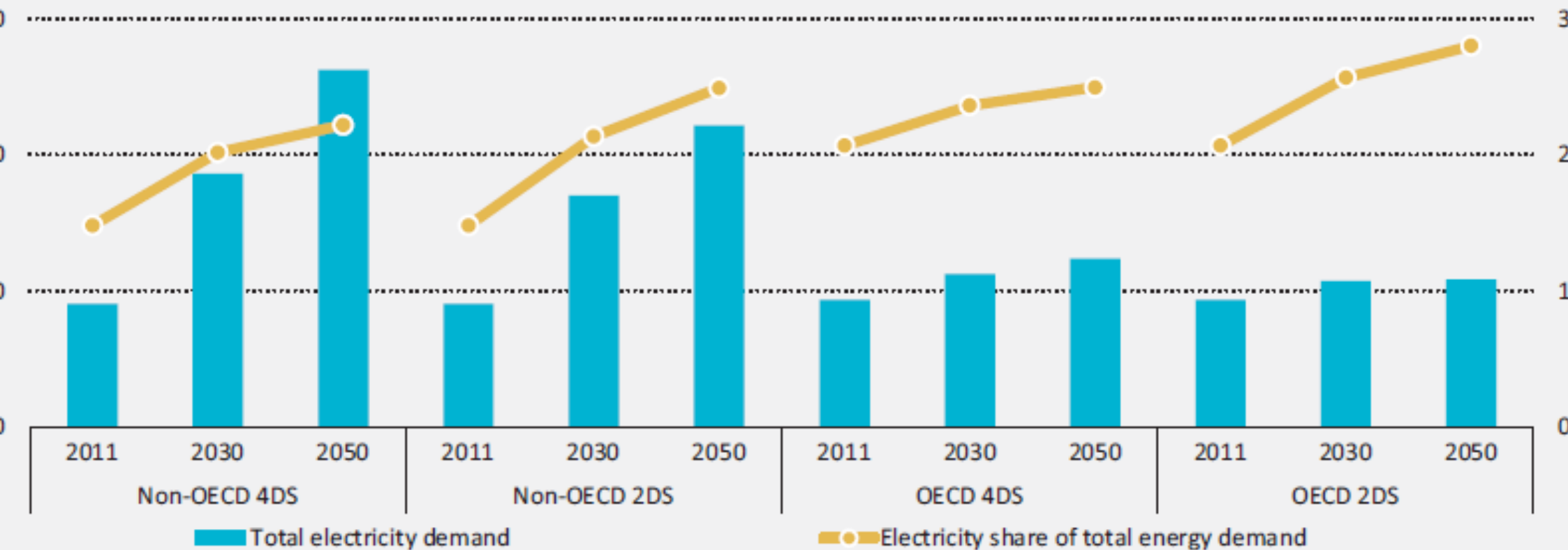
New business and investment opportunities are emerging close to the customer



# And a new focus on electricity

1.1

## Electricity demand and share of electricity

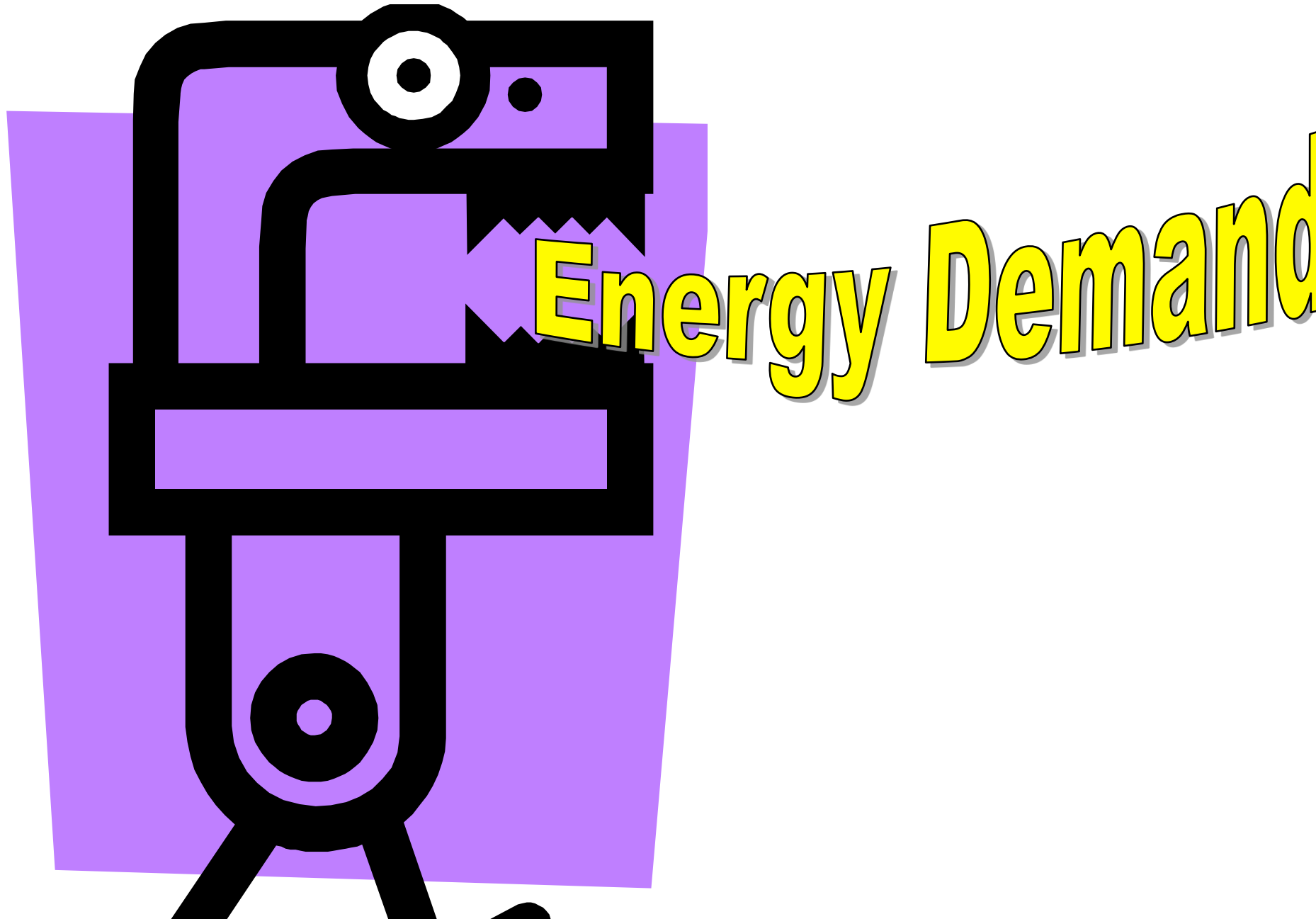


TWh = terawatt hours. Unless otherwise indicated, all tables and figures in this report derive from IEA data and analysis.

Point

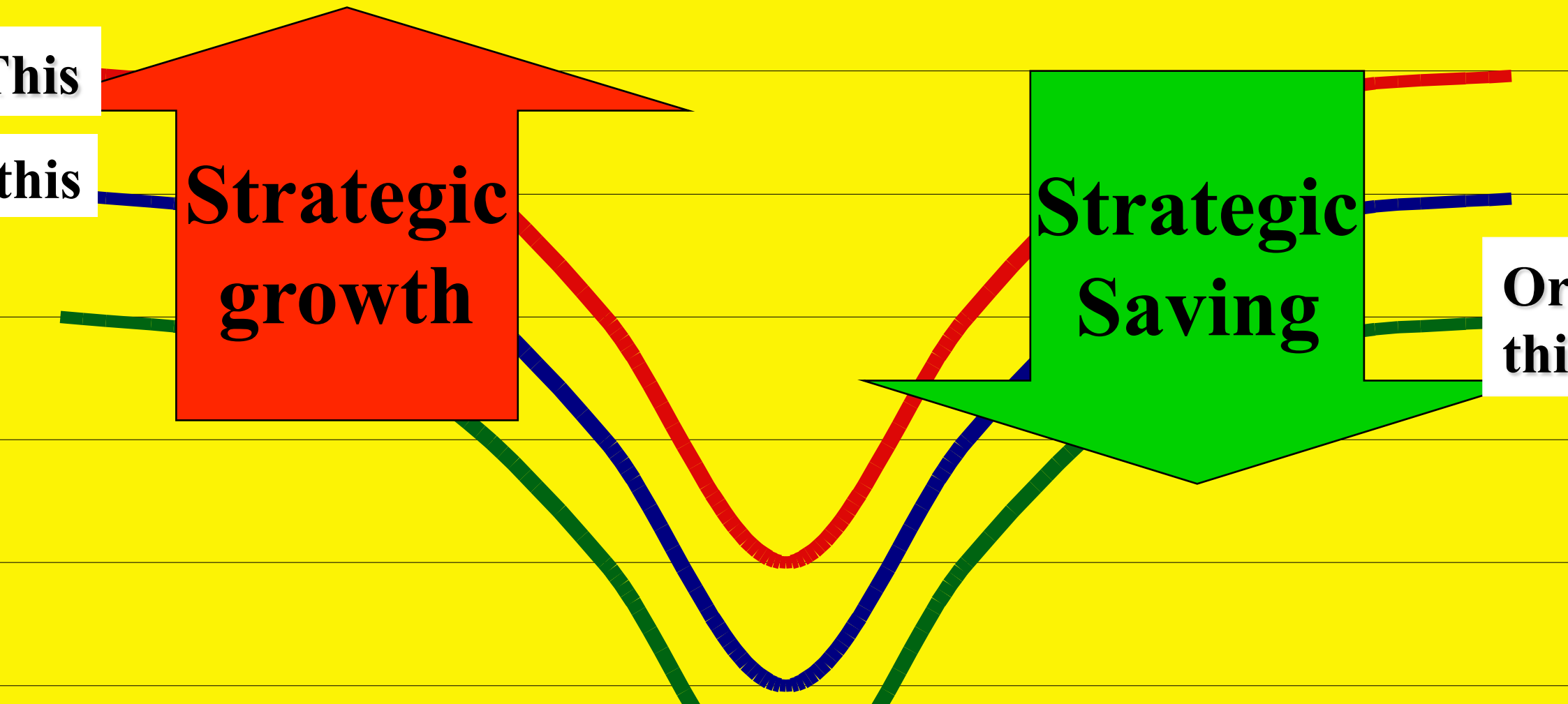
*Electricity demand growth differs between OECD and non-OECD countries, but the dominant trend is towards an increasing share of electricity in the overall energy market.*

DSM is a tool to make large scale  
energy efficiency possible



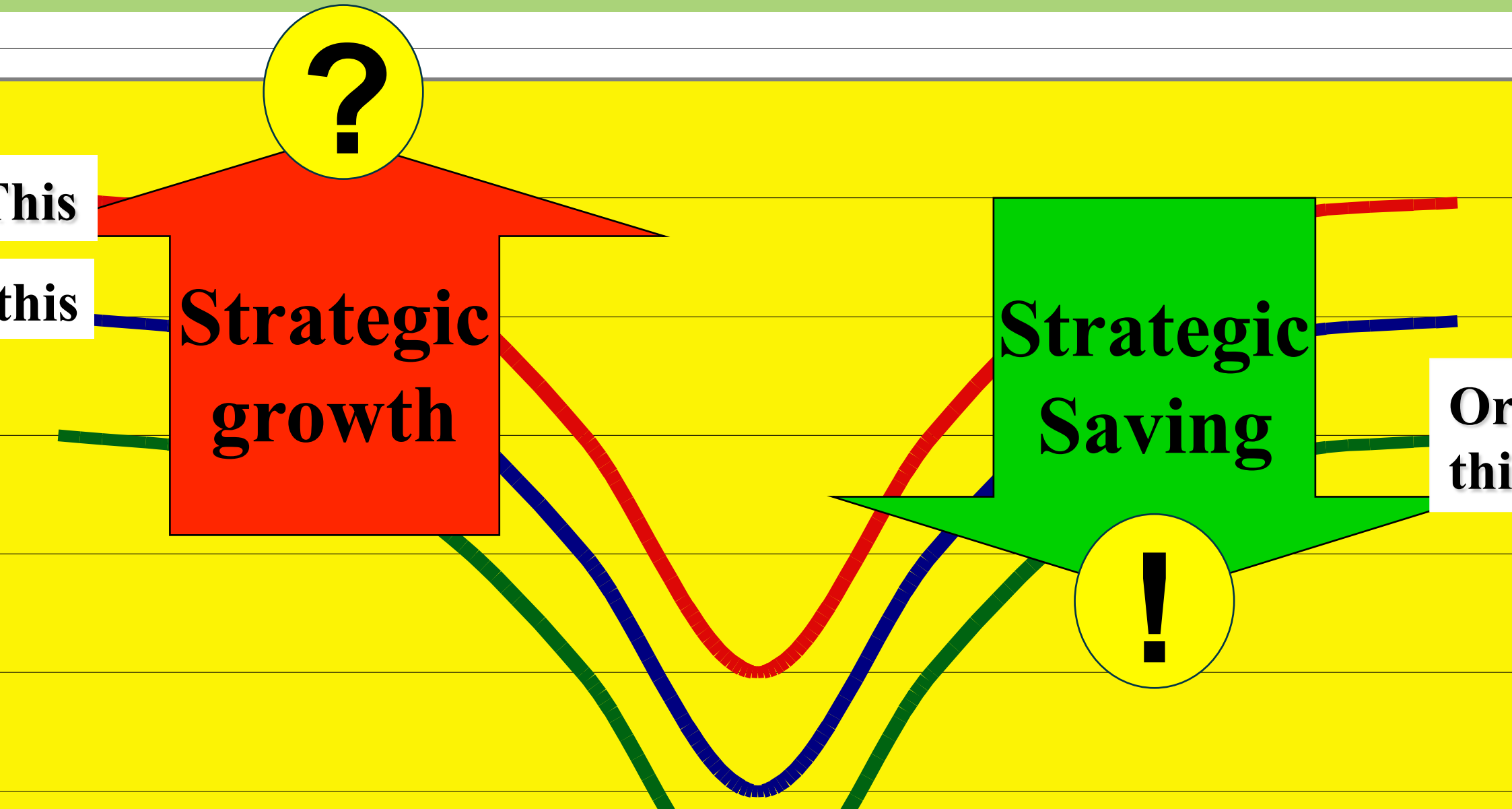


# DSM can change the LOAD LEVEL



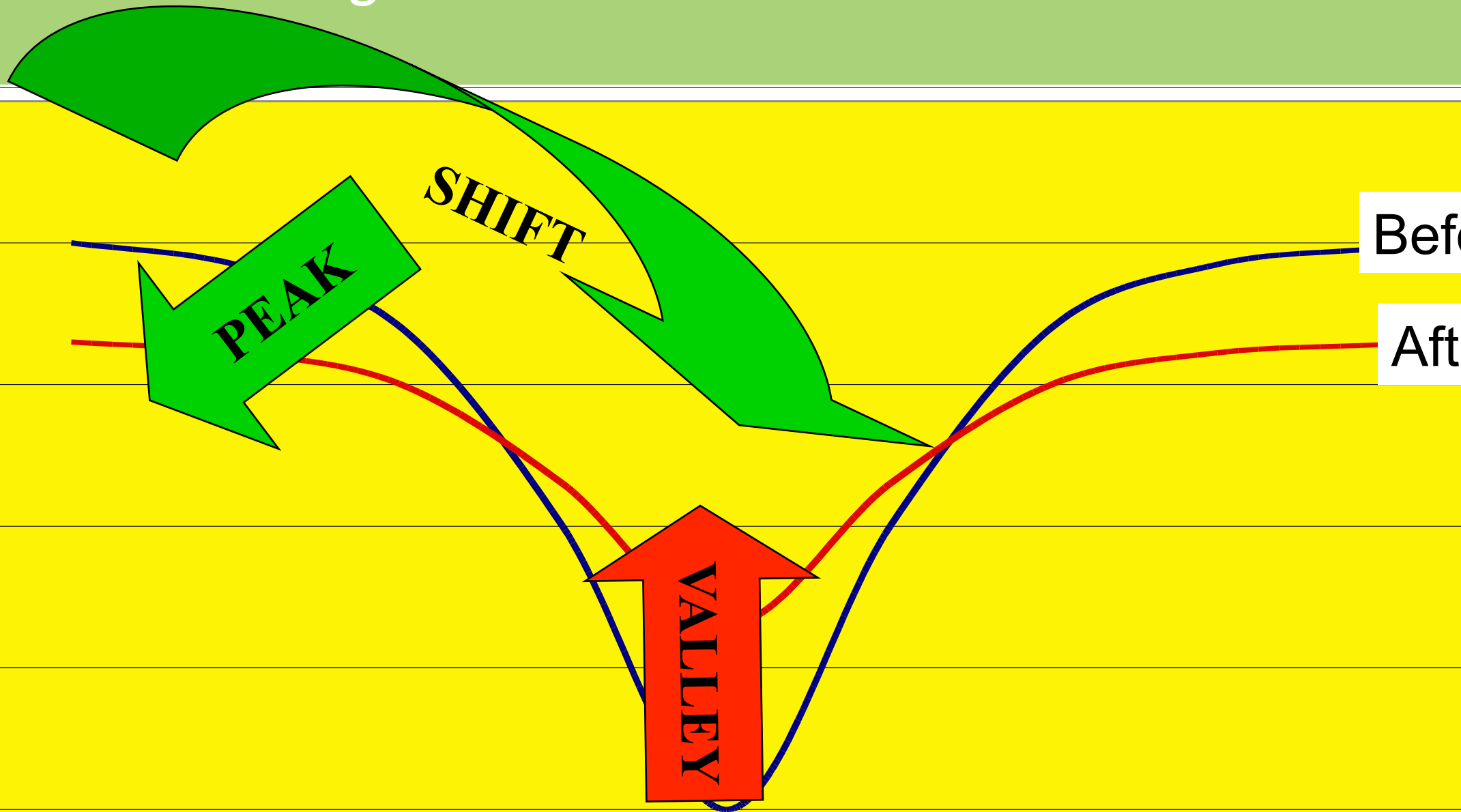
Adapts the system to the environmental requirements

# DSM can change the LOAD LEVEL



Adapts the system to the environmental requirements

# DSM can Change the LOAD SHAPE



Adapts the load to the capacity of the system

# DSM can Change the LOAD SHAPE



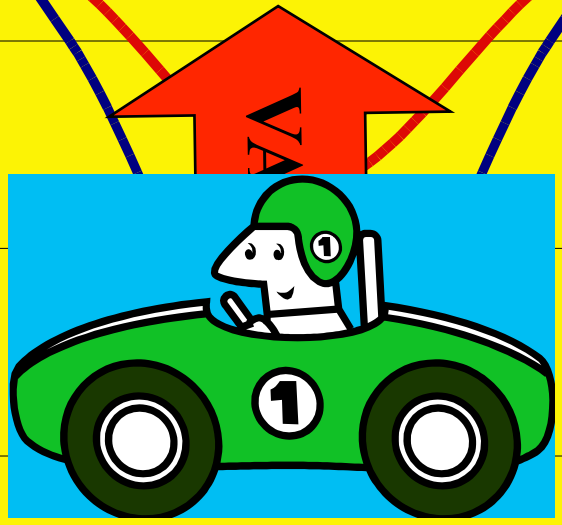
€ (but)

PEAK

SHIFT

Before

After



Adapts the load to the capacity of the system

# Change Agents (companies, intermediaries, catalysts)

DSM-concept		Change agent role	Example
c essing es as are)	Monopolised markets	Deliver products and services	Paradip Port (India)
	Customer aggregation	Fundraising	Public Benefit Charges (UK)
	Liberalised markets	Mandate utilities to achieve a set level of energy efficiency	White Certificates (Italy, some Australian states) EE Commitment (UK)
tivating utilities to deliver energy ncy		Decouple profit from sales volume	California Investor-owned Utilities
y Efficiency Power Station		Aggregate energy efficiency projects to the scale of a virtual power plant	Jiangsu, Shanghai and Guangdong (China) Efficiency Vermont
rnement Deployment schemes		Aggregation of purchasing power	FEMP (USA), Technology procurement (Sweden)

# *The problem is not one but several!*

## **Load level**

- a wasteful demand requires too much supply for the specific needs (The customer do not need energy! He needs the service that energy, combined with an installation, provides)

## **Load shape**

- high peaks,
- little reserve capacity,
- bottlenecks in transmission and distribution

## **Market responsibilities**

- who is the owner of the problem?

# There is a website ([www.dsmu.org](http://www.dsmu.org))

gera Visa Favoriter Verktyg Hjälp

Sök Dela Mer »

Logga in

HOME MY LEARNING APPRAISALS FIND COURSES CALENDAR

Home ▶ My courses ▶ Energy Efficiency ▶ DSMU

Turn editing on

### NAVIGATION

Home

- My learning
- Site pages
- My profile
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  - DSMU**
    - Participants
    - Badges
    - DSM University (beta)
    - DSM Café
    - The logic of DSM
    - DSM Management
    - Energy use (load level)
    - Flexibility (load shape)
    - Integration
    - Business models
    - Feedback
    - Glossary
    - The DSM quiz
    - Sandpit Hans Nilsson
- My courses

### ADMINISTRATION

- Course administration
  - Turn editing on
  - Edit settings

## DSM University (beta)

What is DSM? In fact, it refers to all kinds of technological changes to the electrical system that originate from the demand side of the market. The purpose of DSM can be multifold, but large scale energy efficiency improvement is certainly a primary goal. The IEA's DSM Program structures its activities into two clusters, depending on the desired impact on the load curve of the energy system.

- The **Load Shape Cluster** includes tasks that aim to improve the shape of the load curve over short (minutes-hours-days) or longer (days-weeks-seasons) time periods. This will primarily increase the **reliability and operability of the system**, although it can also indirectly improve energy efficiency.
- The **Load Level Cluster** includes tasks that aim to lower demand levels or shift the load from one energy system to another. This cluster primarily targets **energy efficiency improvement** and the reduction of Greenhouse Gas emissions, although it can also improve the reliability and operability of the system.

News forum

About the DSM University

### DSM Café

Enter the virtual Café to discuss any issues related to DSM.

The café is governed by just a few common-sense rules:

- new members are invited to introduce themselves in the introduction forum
- posts need to be on the topic of DSM
- no ads or self-promotion. Relevant reports, events, news, ... are welcome in the 'what's happening in DSM' section of the café
- appropriate use of language
- English only

Introduce yourself

The logic of DSM

DSM Management

Energy use (load level)

Flexibility (load shape)

### SEARCH FORUMS

Go

Advanced search ?

### LATEST NEWS

Add a new topic...

30 Nov, 14:14

Hans De Keulenaer

Welcome to the DSM University (beta)

Older topics ...

### UPCOMING EVENTS

There are no upcoming events

Go to calendar...

New event...

### RECENT ACTIVITY

Activity since Monday, 17 February 2014, 10:16 AM

Full report of recent activity...

Nothing new since your last login

### PEOPLE

Participants

# The Structure

**the Logic of DSM**, in which motivations and overview is presented in particular to decision makers and people who wants to see how issues connect to each other

**Strategies for DSM**

**the role of Efficiency and flexibility in systems (IDSM)**

**actors, and their roles/relations, to make DSM a reality**

**DSM potential and costs (including rebound)**

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**Governance (or DSM Management)**, in which incentives, cost/benefit, planning, information and regulation are dealt with but also institutional behavioural issues such as carriers and biases.

**Incentives (carrots and sticks)**

**Evaluation**

**the plethora of benefits (and for whom)**

**planning and regulation**

**carriers and biases**

Lecturers: 1) QAs or delegated experts 2) Other



# Structure continued

**Energy use (Load Level)**, technologies and measures to promote load level changes including strategic shifts of energy use to reduce carbon emissions.

**Obligations and certificates (applications and practice)**

**Network and grid issue**

**Equipment**

**Calculation**

**Business models**

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**Flexibility – (Load shape)**, technologies and applications in DR systems and as regards customer benefits and participation

**Incentives (Pricing to reflect capacity needs)**

**Demand response practices and market segments**

**Technologies**

**Market models**

# *Structure continued*

**5. Integration**, putting energy efficiency, storage and RES together to create integrated systems

**Preparing for integration**

**Practical examples**

**Incentives**

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**6. Business models**, to deliver energy services

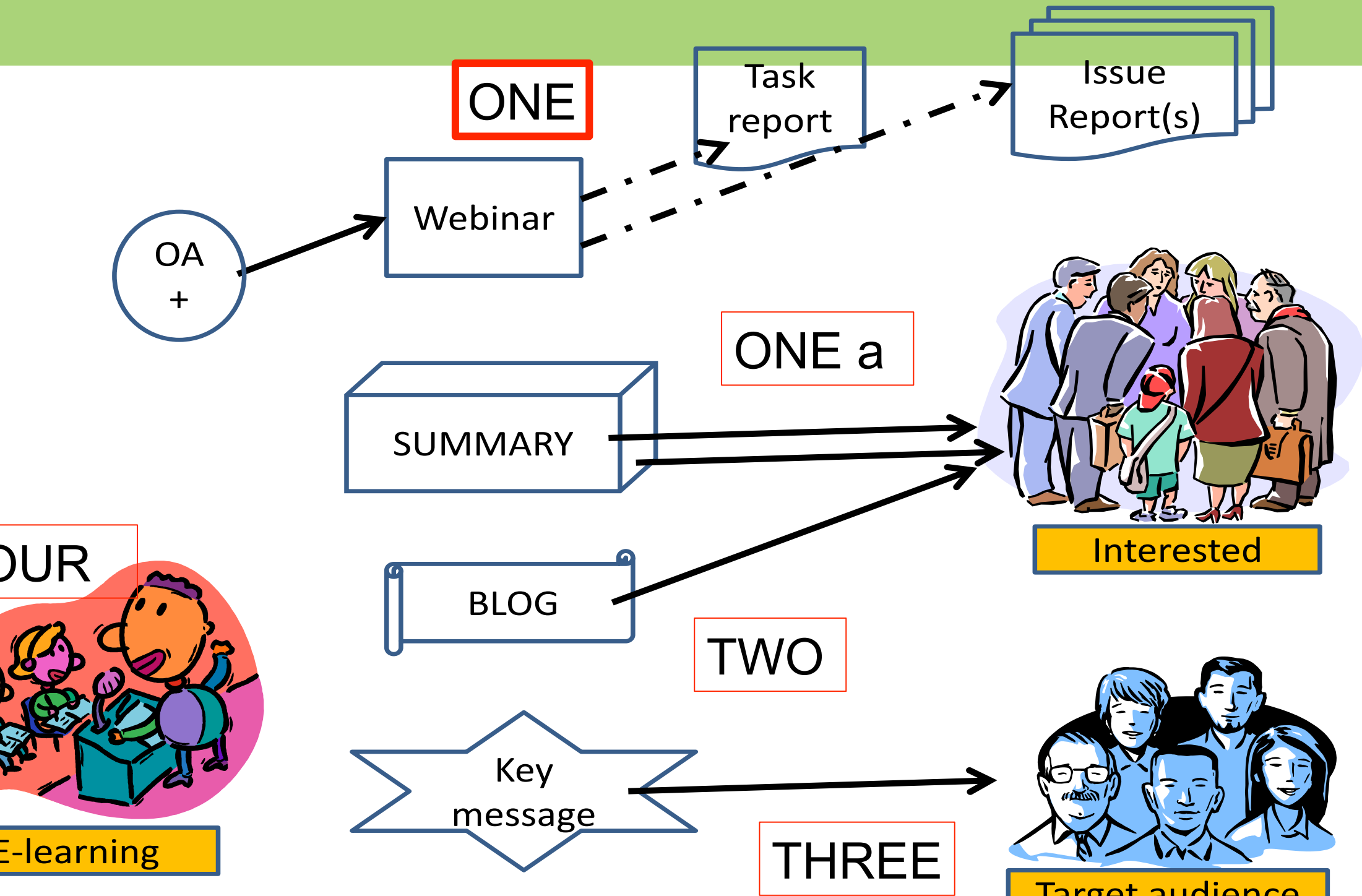
**Empowering users**

**ESCOs and EPCs**

**Municipalities**

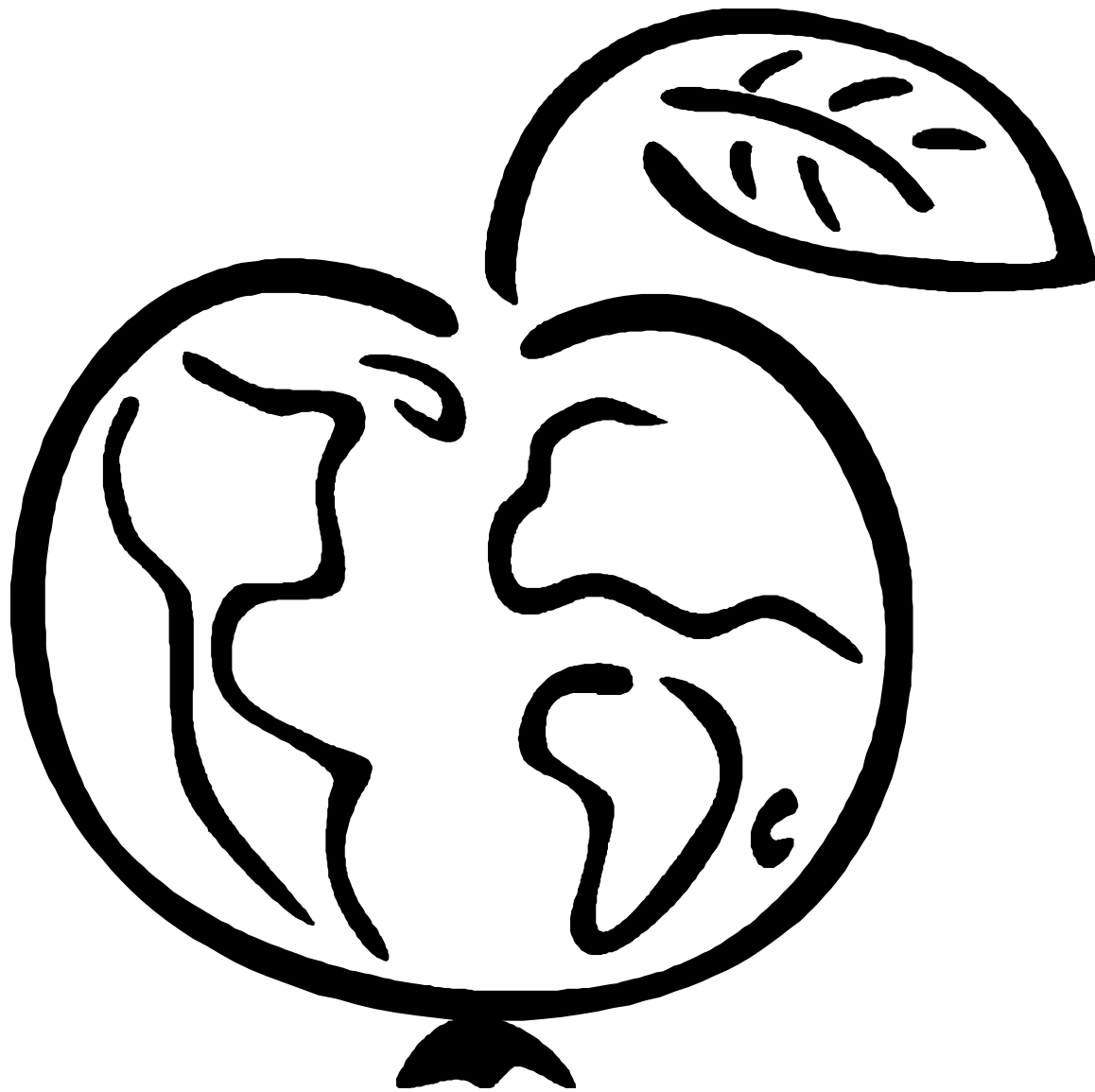
**Market Transformation**

# PRODUCTS



Task reports.	1. Available
WEB-casts to promote Task Reports	2. To be tested
ue reports. Such could be derivate from the task report	Should preferably spin-off from webi
mmaries. There should be (a) task report summaries and (b) theme summaries (1-2 rs).	Some first (a) are available on our w page
ogs. Should be developed to make a more popular presentation that also laymen can and be used to attract interest for coming webinars	Some first are ava on our web-page
y messages. Shorter appeals to target audiences	Should be consider the PPC
earning. The setting for a more formal education. We should eventually be able to er courses for more or less formal training	Future opportunity
pert advice. Anyone who have a problem related to DSM should be able to contact d we will search for an expert	Should be consider relation to webina
M-U Café. We should have the opportunity for chatting and discussions like we have y on facebook and Linked-in. This café should also be used in developing concepts sks with webinars and appeals to find new participants.	The forums for the U café is available, needs to be 'activa
ssary. Noblesse oblige. IEADSM should provide clear definitions for DSM terms in r to help frame the DSM debate.	System available. terms defined.
M Community of Practice. Around the webinars, we intend to gradually build a munity of practice of DSM practitioners.	For 2015. But registrations for th

*s sustainable growth possible...*



..without DSM  
and without  
global co-  
operation?

*Any Questions?*