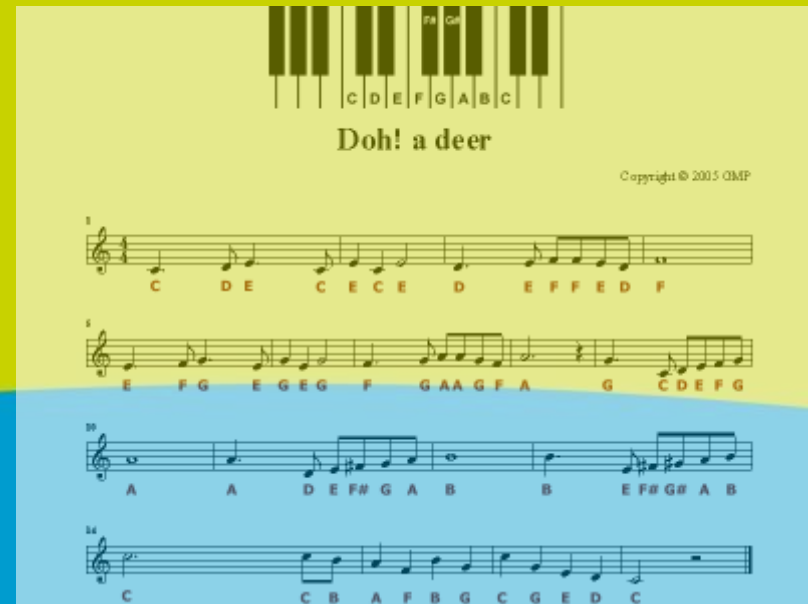


# The Sound of Transition

## Energy Transition: What are the Challenges?

Wageningen, 19 September 2014

Jan Paul van Soest



A piano keyboard diagram at the top shows the notes C, D, E, F, G, A, B, C. Below it, the title "Doh! a deer" is written. The musical score consists of four staves of music in 4/4 time, with chord progressions written below the notes. The first staff starts with a treble clef and a key signature of one flat. The second staff continues the melody. The third staff has a key signature change to two flats. The fourth staff concludes the piece with a double bar line.

Doh! a deer

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1 C DE CECE D EFFED F

5 E FG E GEG F GAAGFA G CDEFG

10 A A D E F# G A B B E F# G# A B

14 C CB A FBG CGED C



De Gemeeynt

# DO = do, with a drunken sailor Transition so far



Captain Morgan



Challenge 1: what do  
you do with a drunken  
sailor?

## *What Do You Do With a Drunken Sailor?*

*"Now seamen who spent their  
time in cargo-carrying sailing  
ships never heard a decent  
shanty; the words which  
sailor John put to them  
when unrestrained were  
the veriest filth."*

—Master Mariner W. B. Whell



*Unexpurgated sea chanties, edited and annotated by  
Douglas Morgan*

# Gas, clutch and brake

- 3 targets: CO<sub>2</sub>, renewable, efficiency
- Each target: patchwork of instruments
- Technology specific subsidies, latest fashions
- Net effect unpredictable or counterproductive
  - E.g. renewable energy subsidies lead to lower CO<sub>2</sub> prices, no net CO<sub>2</sub>-reduction within ETS framework
  - Ban on light bulbs same effect
- Favorable conditions for building coal-fired power plants
- Unbundling energy companies: production sold to The Big Ones (incl State-owned companies...)
- New developments: shale gas US → coal prices down. Coal power replaces gas power NL
- Mobility: hyped e-car introduction € 500/ton CO<sub>2</sub>
- Tax exemptions plug-ins running 7l:100km
- Etc...

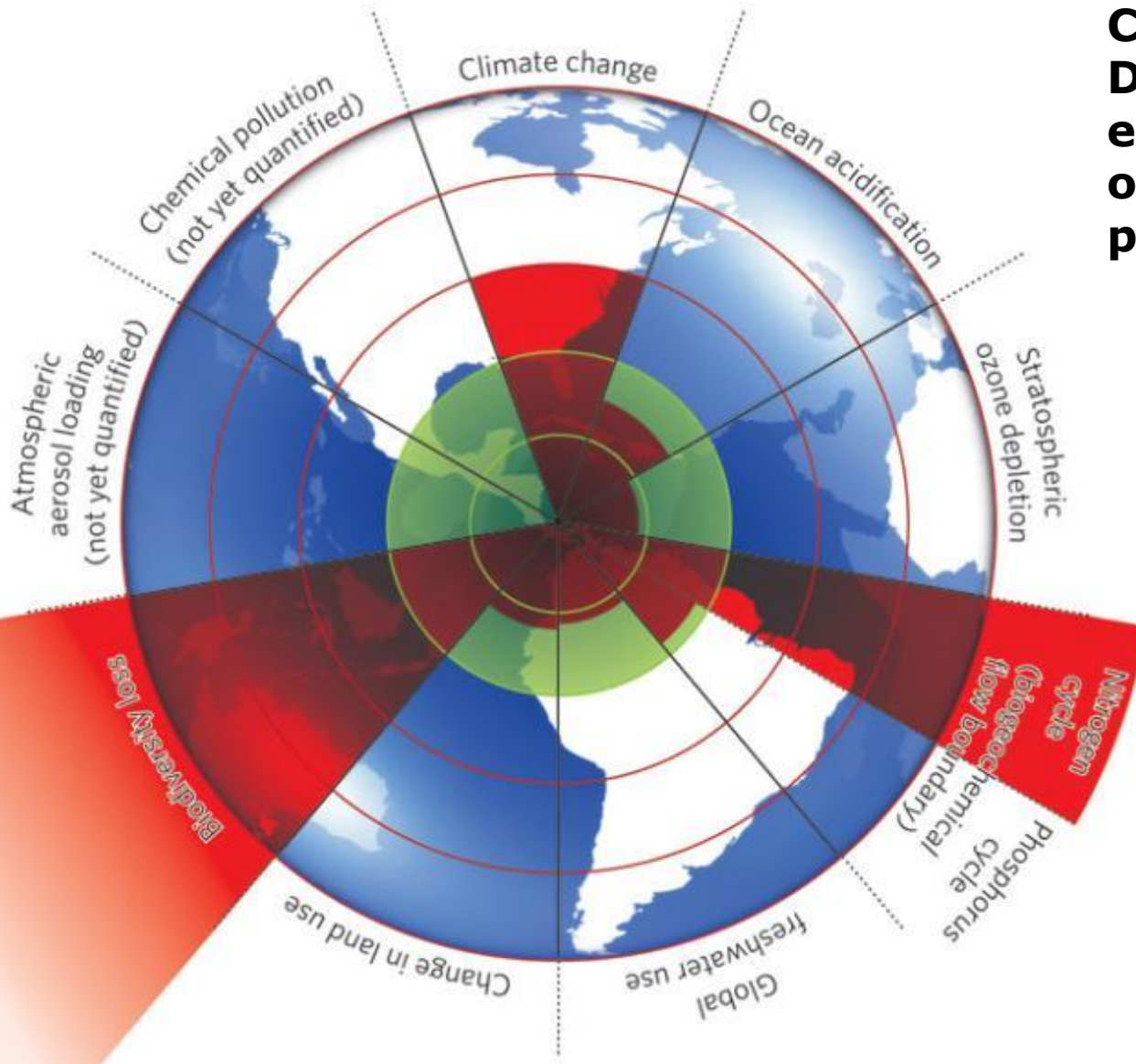


## **RE = reason, motives for change**

- Resources: scarcity?
- Climate change and other impacts? Planet under Pressure.
- Geopolitics, independence?
- Economy, opportunities?
- Costs?

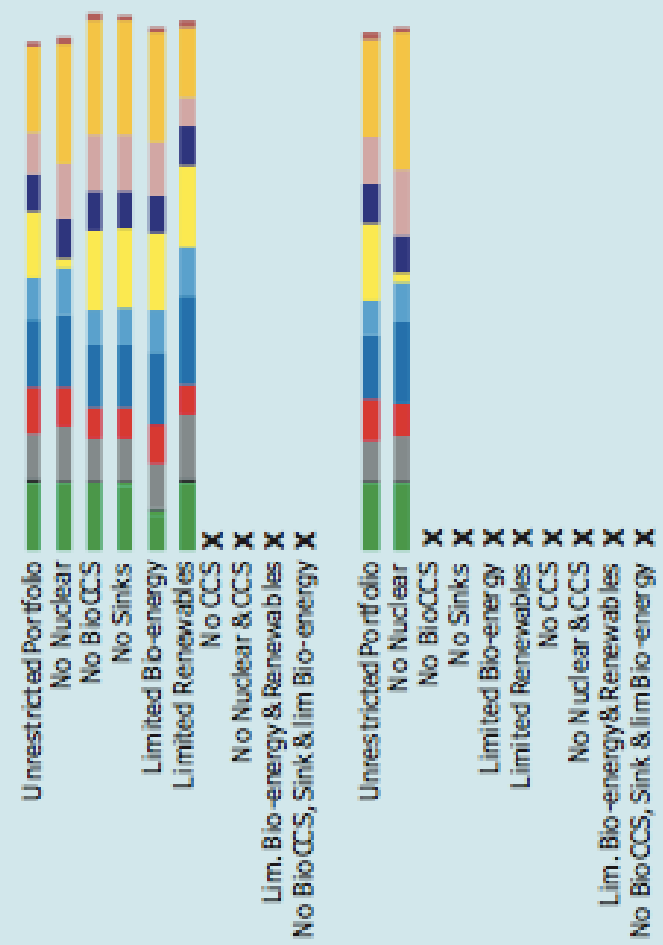
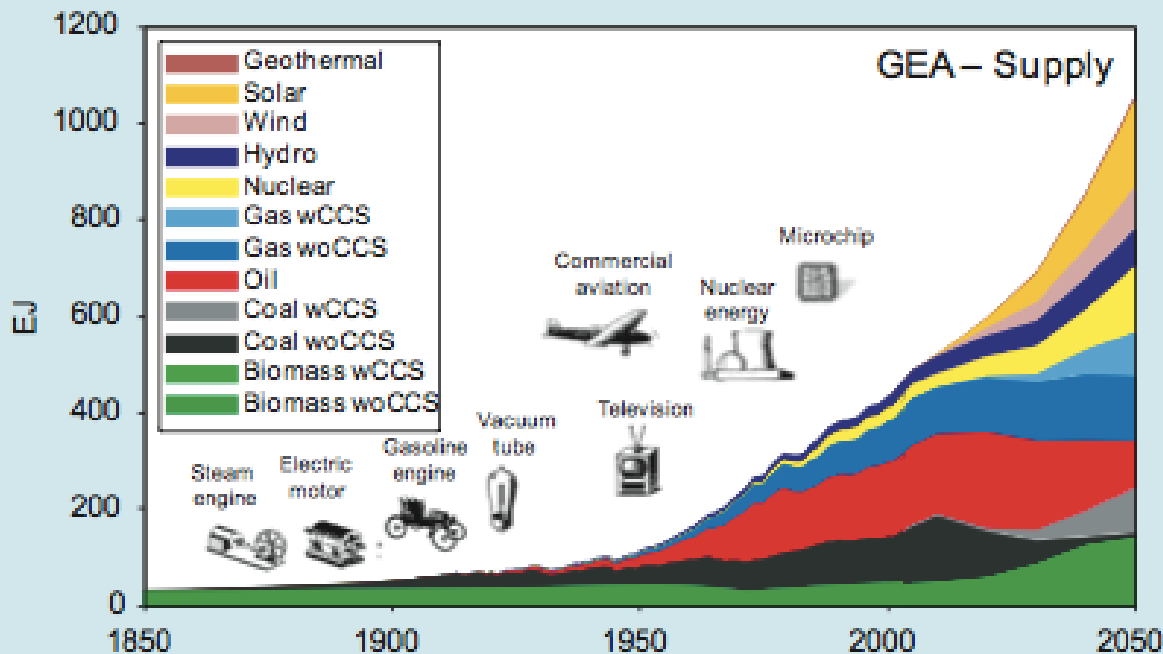
Wageningen, may we have your votes, please?

# And the winner is .....



**Challenge 2:  
Developing an  
energy system that  
operates within the  
planetary boundaries**

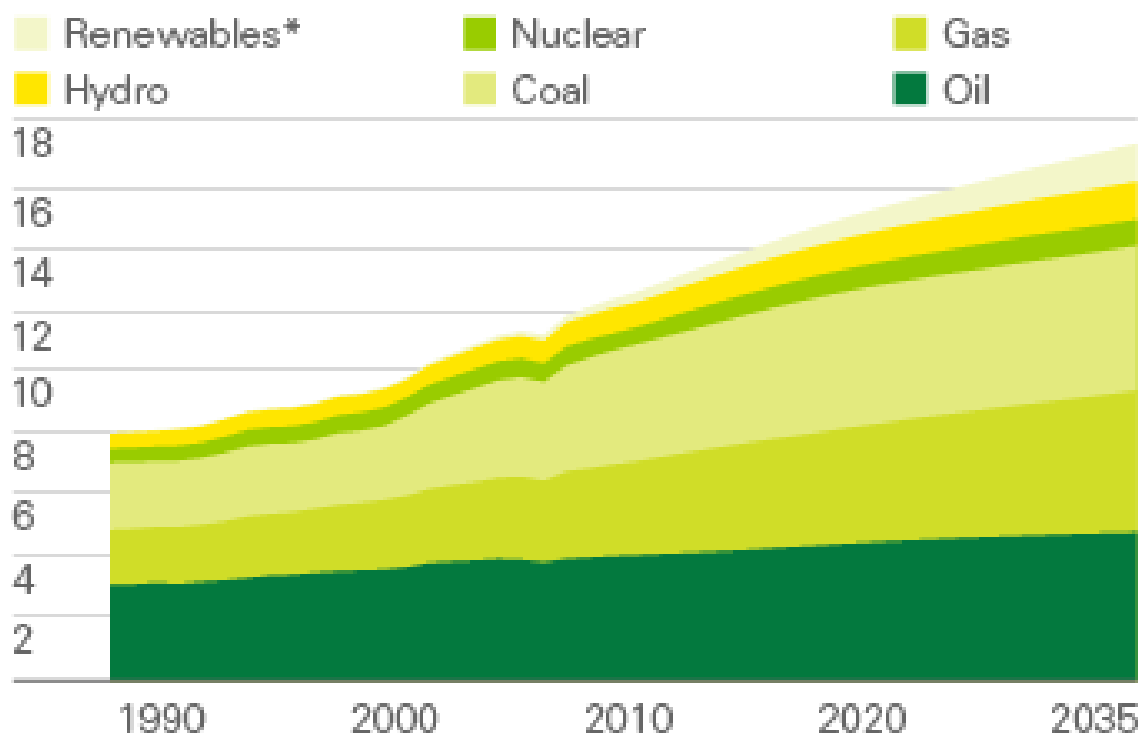
# MI = Millions & billions: growing demand



**Challenge 3: Providing reliable, affordable *and* clean energy for a continuously growing demand**



## Fa = Fast, but still too slow

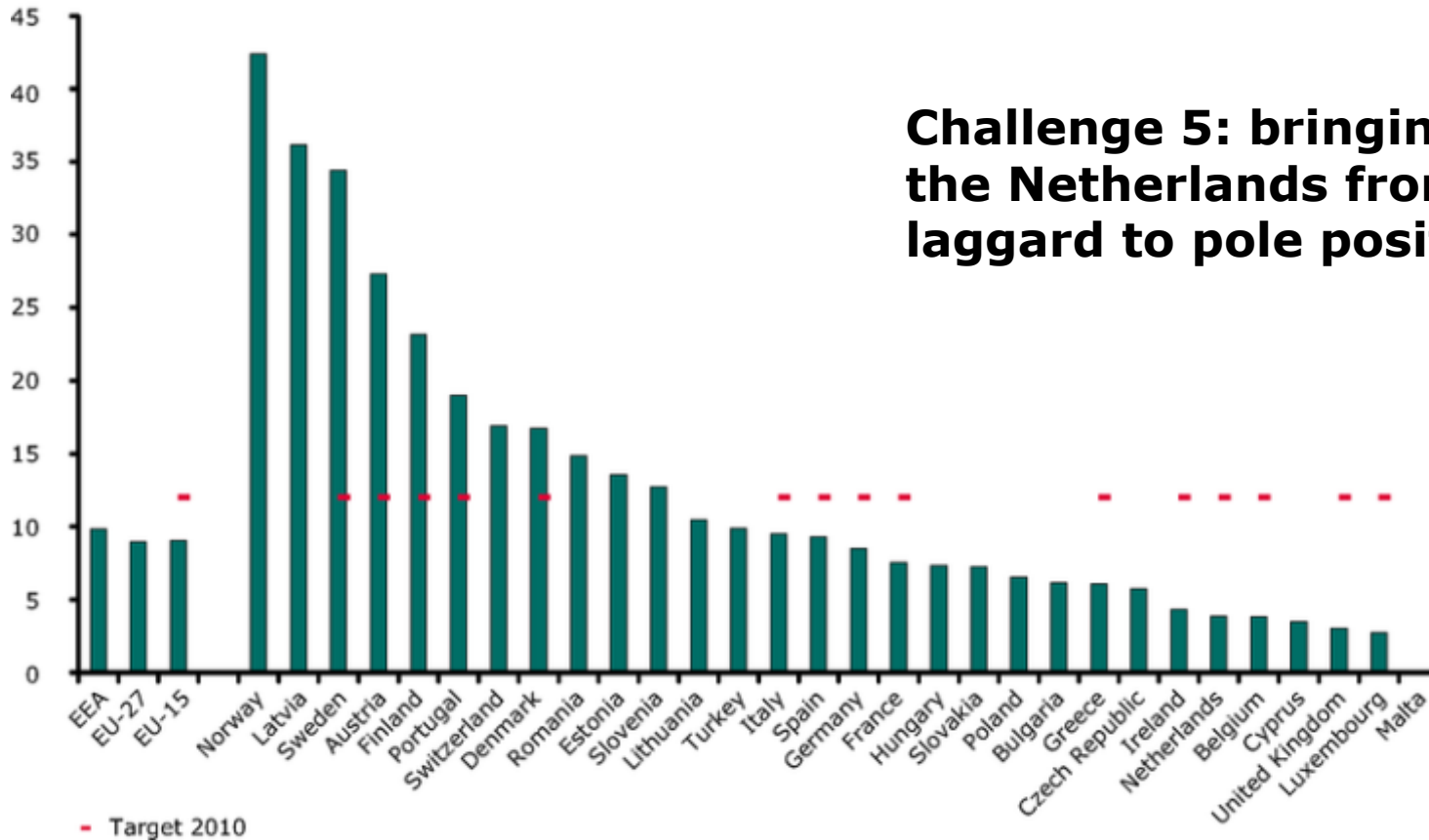


\*Includes biofuels.

**Challenge 4:  
creating a policy  
framework that  
favorizes  
renewables over  
fossil fuels**

# SO = So what we are lagging behind?

Share of RE in GEIC (%)

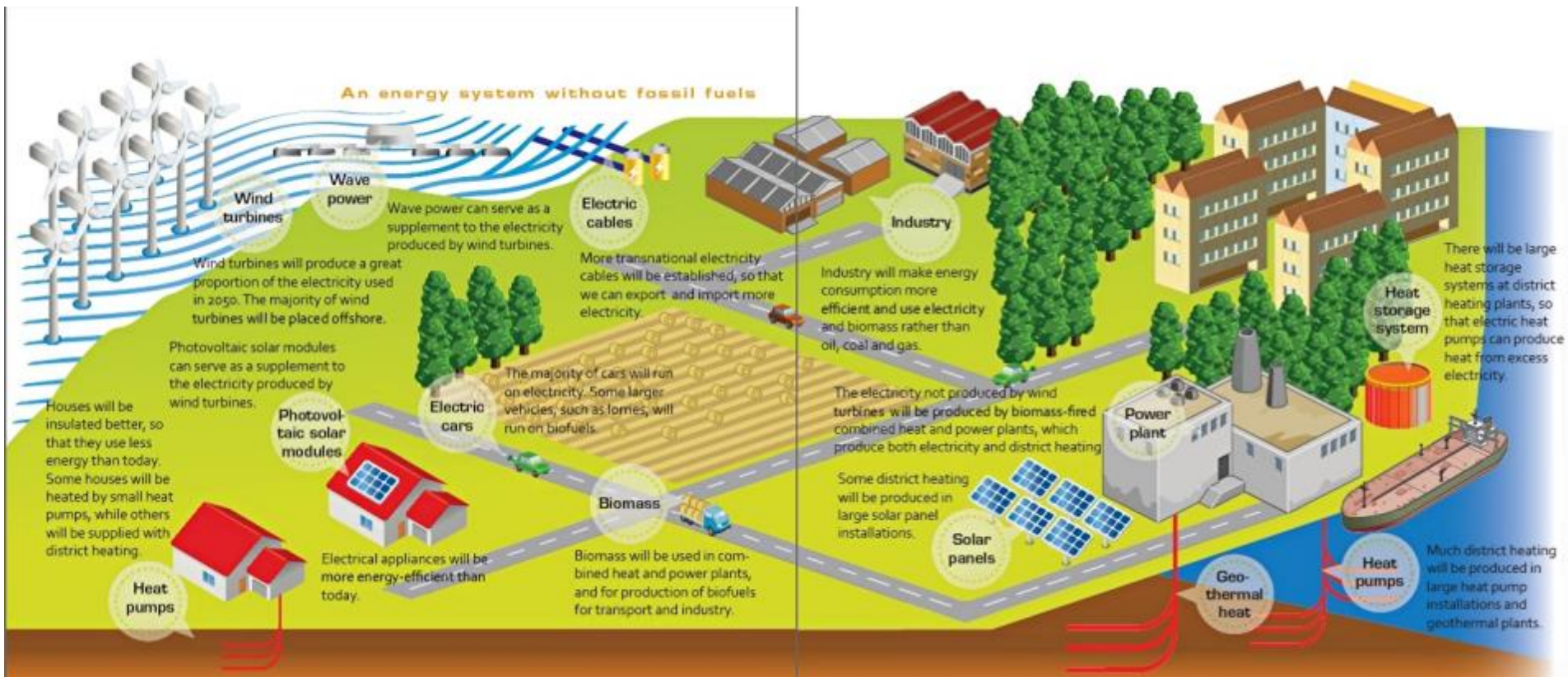


**Challenge 5: bringing the Netherlands from laggard to pole position**



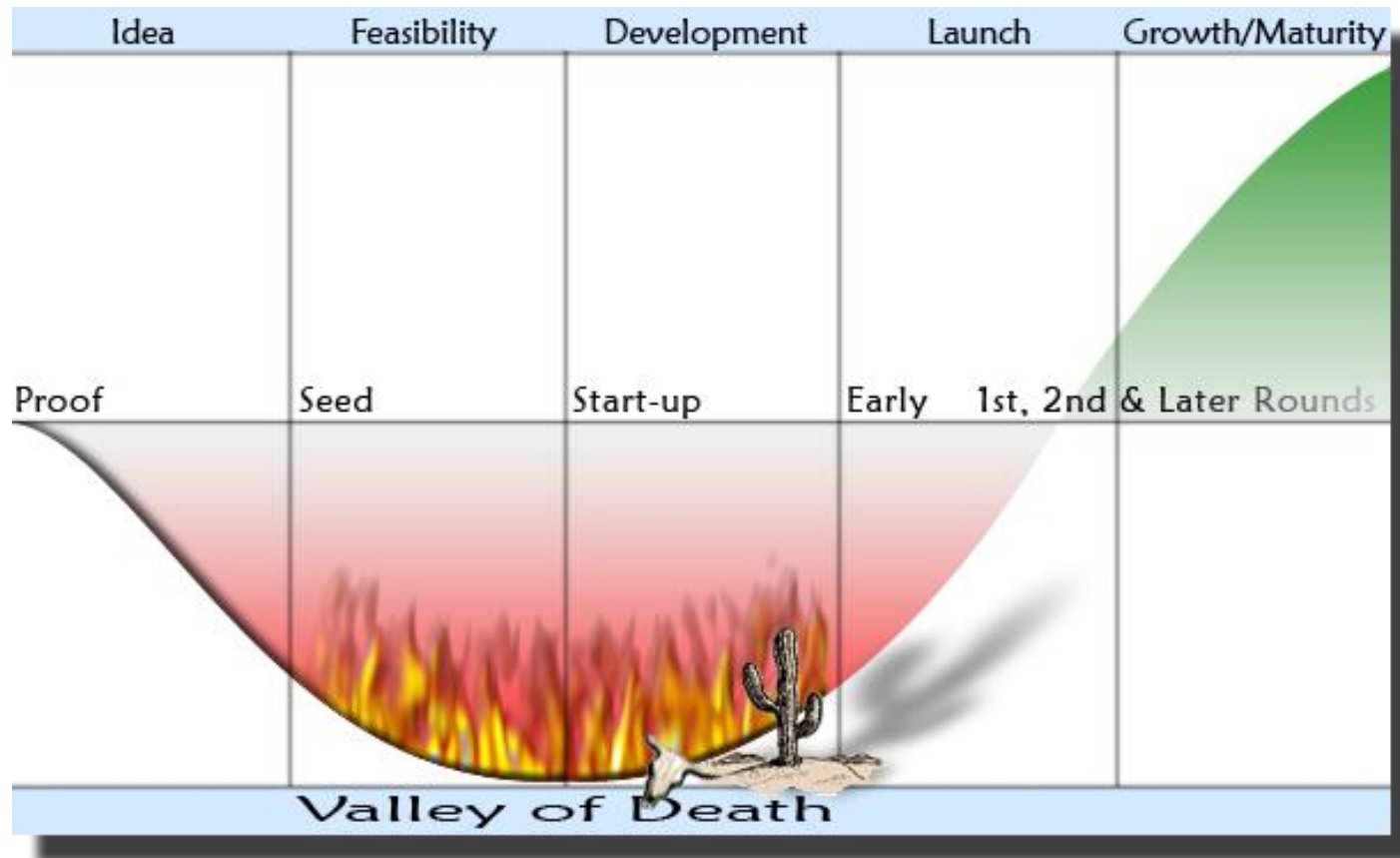
# LÀ = voilà, it's there, it can be done

## Challenge 6: designing a stable, integrated system, based on renewable, low-carbon and intermittent options



# TI = Time to cross the valley

## Technologies and innovations

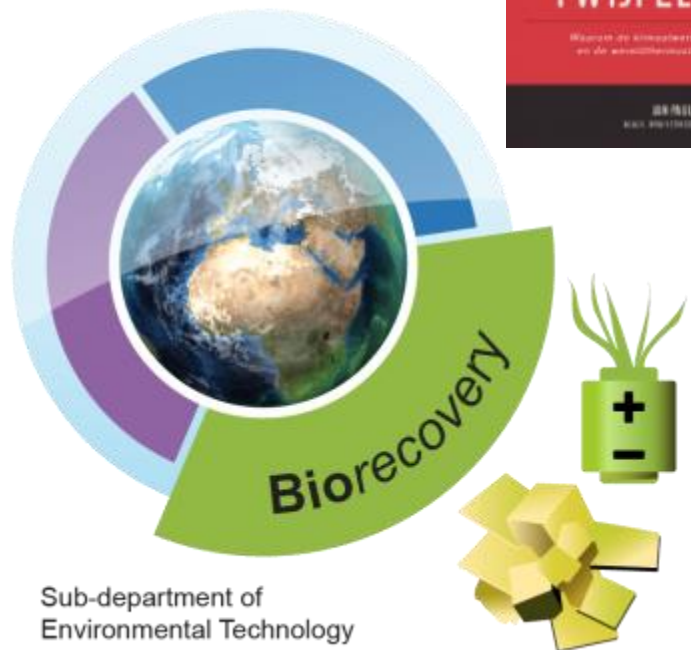


**Challenge 7: surviving  
the valley of death**

# And that will bring us back to DO



- Energy transition can be done:
- Vision: a clear and shared perspective
  - Flexibility and creativity
  - Internalization of external costs → green and competitive investment and innovation climate
  - Long-term stability in governance and policies
  - Within such a framework, innovative ideas will flourish



Sub-department of  
Environmental Technology

**Challenge 8: defeating the merchants  
of doubt:**

**Vested interests, ideologies, psyche**



[www.gemeynt.nl](http://www.gemeynt.nl)



## Doh! a deer

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1

C DE CECE D EFFED F

5

E FG E GEG F GAAGFA G CDEFG

10

A A DEF#GA B B EF#G#AB

14

C CB AFBGCGEDC

The image shows four lines of musical notation for the song 'Doh! a deer'. Each line is numbered at the beginning (1, 5, 10, 14). The notation is in treble clef with a 4/4 time signature. Below each line of notes are the corresponding letter names for the notes, indicating the pitch. The notes are: Line 1: C, D, E, C, E, C, E, D, E, F, F, E, D, F. Line 2: E, F, G, E, G, E, G, F, G, A, G, F, A, G, C, D, E, F, G. Line 3: A, A, D, E, F#, G, A, B, B, E, F#, G#, A, B. Line 4: C, C, B, A, F, B, G, C, G, E, D, C.