



energising
deltas



Investing in your future. Energising deltas is partly financed by the European Regional Development Fund of the European Union.

Introduction

Hans van Breugel, Chairman action group
“Energy from Water”
CEO of partner company Tocardo International



- Energising deltas; the project
- Potential of Energy from Water
- Network of Energising deltas
- Demonstration project Oosterschelde
- Barriers of the implementation
- Proposal until 2020



Project Energising deltas

- The concept:
 - Integrate energy and delta technology
 - Climate adaptation meets climate mitigation
 - Contribute to Paris treaty
- Starting points:
 - Strong Dutch position
 - in delta-technology
 - in energy technology: tidal & blue energy
 - EU expansion
 - Dutch market for development
 - Huge EU home and export market



Opportunities in NL



Afsluitdijk



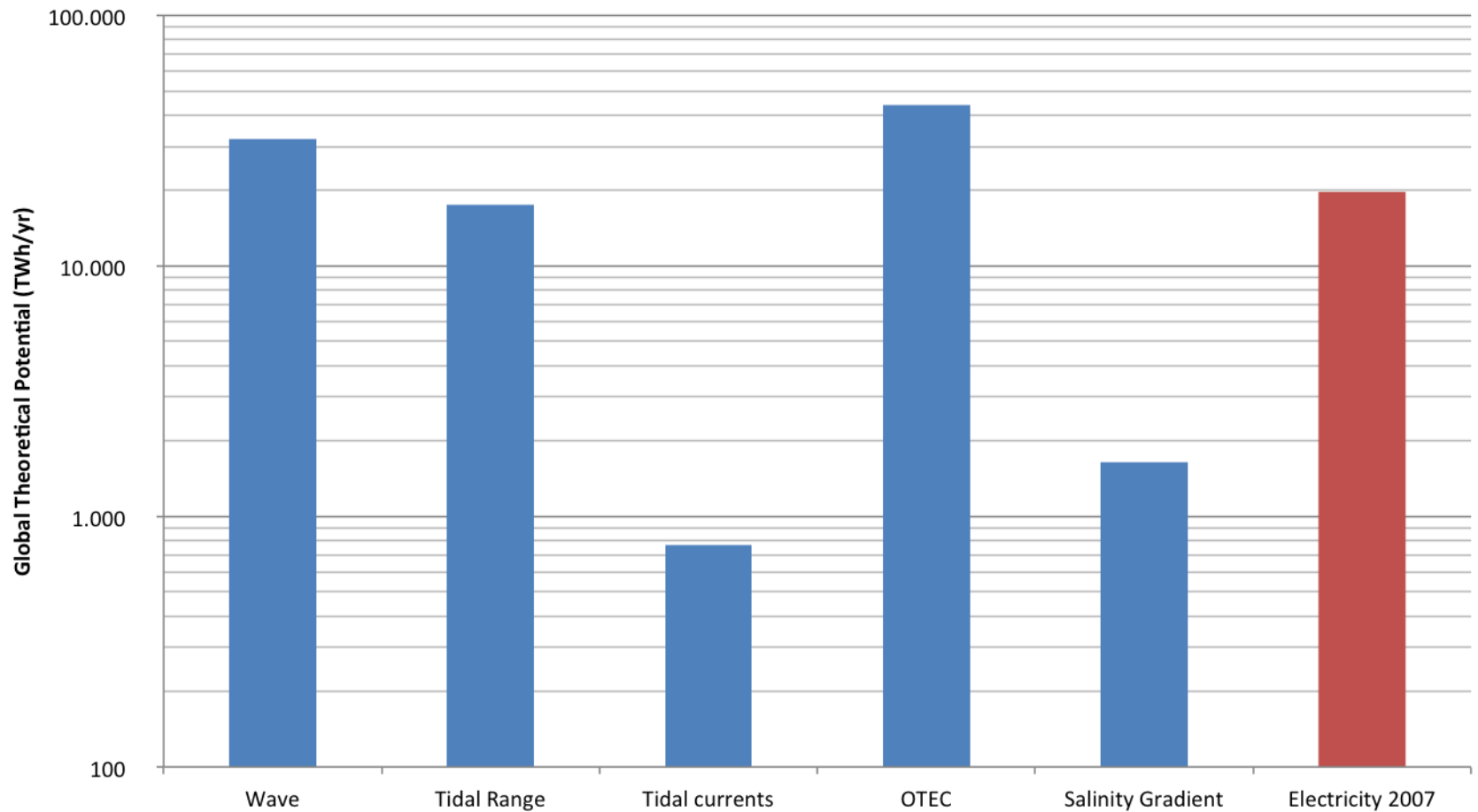
Brouwersdam



Storm surge barrier Oosterschelde



Global Potentials



(IPCC 2011)(Black & Veatch & Carbon Trust 2005; IEA 2009)



Vision on concept

- > 100 vulnerable deltas worldwide
- Hard and soft measures
 - Blue Energy
 - Freestream turbines
 - Low head turbines

Energising deltas

- Coastal defense systems
- Integrated development
- Public – Private partnership
- Offset positive against negative effects
- Lowering barriers through large scale demonstration



Project Energising deltas



The partners:

- Industry:
 - Tocado, REDstack and Antea Group/Strukton
- Knowledge organisations:
 - Deltares, ECN, Erasmus University and TTC (coord.)
- Semi-public:
 - Energy Valley





Energizing the delta

Complex and non-linear processes:

- Innovative technologies, non-proven concept (scale)
- Always public-private (and civic) challenge
- Relying on additional use of the water work, adjacent to its formally vested tasks
- In many cases different government agencies involved
- Financing and investing rely on multiple sources, beneficiaries and ROI-regimes.



‘Developing a Roadmap’

Is highly depending on:

- The ***negotiated story*** behind the intended ED-project: values, interests and (formal) policy agenda that determine its scope and argumentation.
- The ***institutional conditions***: formal tasks and non-formal attitude of the Public Asset Manager, level of advancement of water management and energy supply, experiences with public-private-(civic) relationships.



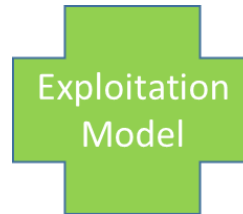
The puzzle and its pieces



Who has the idea and takes the initiative?



How does the Public Asset mgr. wants to manage its water works?



What are the conditions for construction, operation and maintenance?



What are the roles and responsibilities of the public and private partners?



Which objectives and functions are Included?



Europe is hotspot, but

Are we entering Valley of Death?

- Or can we make Energising Deltas a European success?
 - EU turbines
 - German/French power engineering
 - Dutch coastal engineering
 - UK and Southern EU demo sites

Needs:

- EU wide expansion of Energising Deltas concept
- Remove complex and conflicting EU rules and regulations
 - Environment versus climate change
- Overall action with focused stakeholder engagement
- Implementation of new finance systems