AquaBattery - KIVI

Blue Battery – opslag in zoet & zout water

Date: 17 April, 2017

Presenter: Emil Goosen

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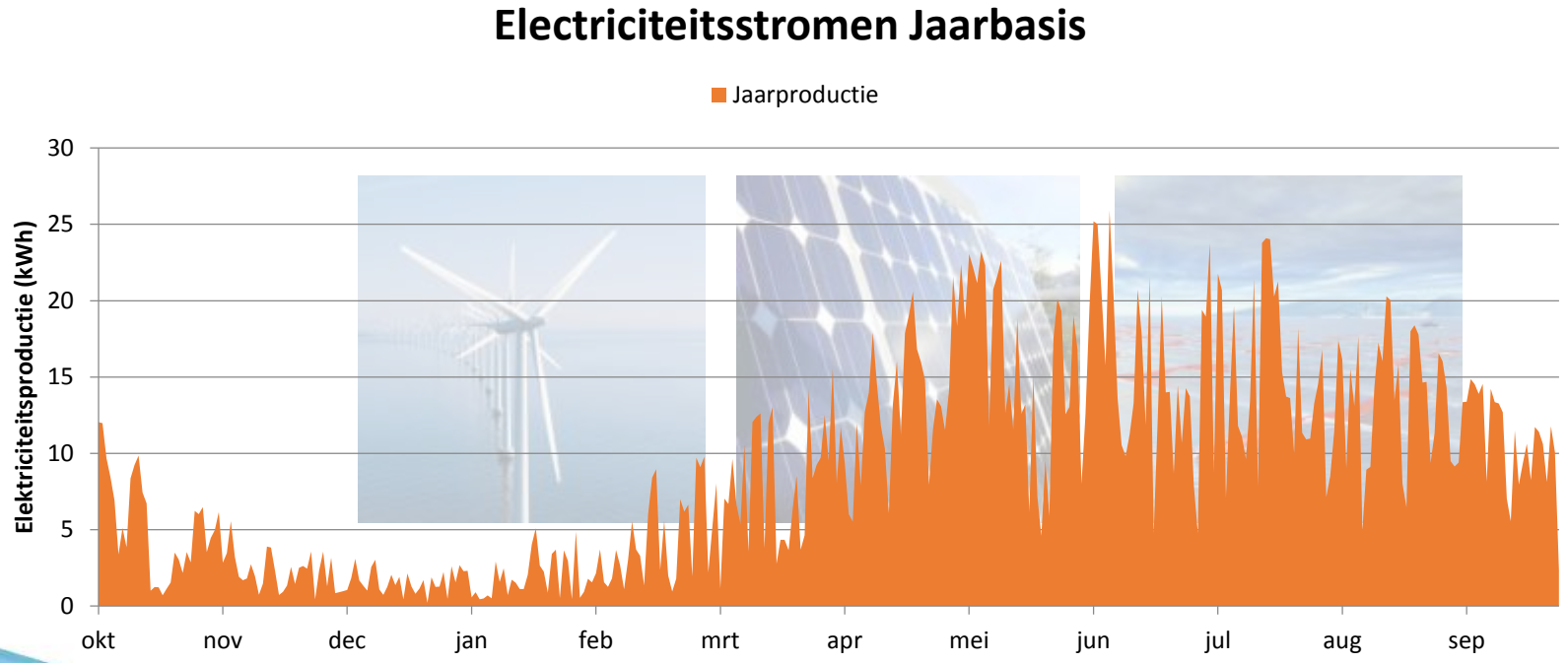
Storing electricity in only water and table salt

Kvk Nr. 60486015 | Uiterstegracht 5, 2312 TB, Leiden NL | info@aquabattery.nl

Opslag van elektrische energie

- Opwekking uit **duurzame bronnen** fluctuerend en onregelbaar
- Energieprobleem van de toekomst: **elektriciteitsopslag**



Tijdschalen

- Kortdurig
- Dag
- Week
- Seizoen

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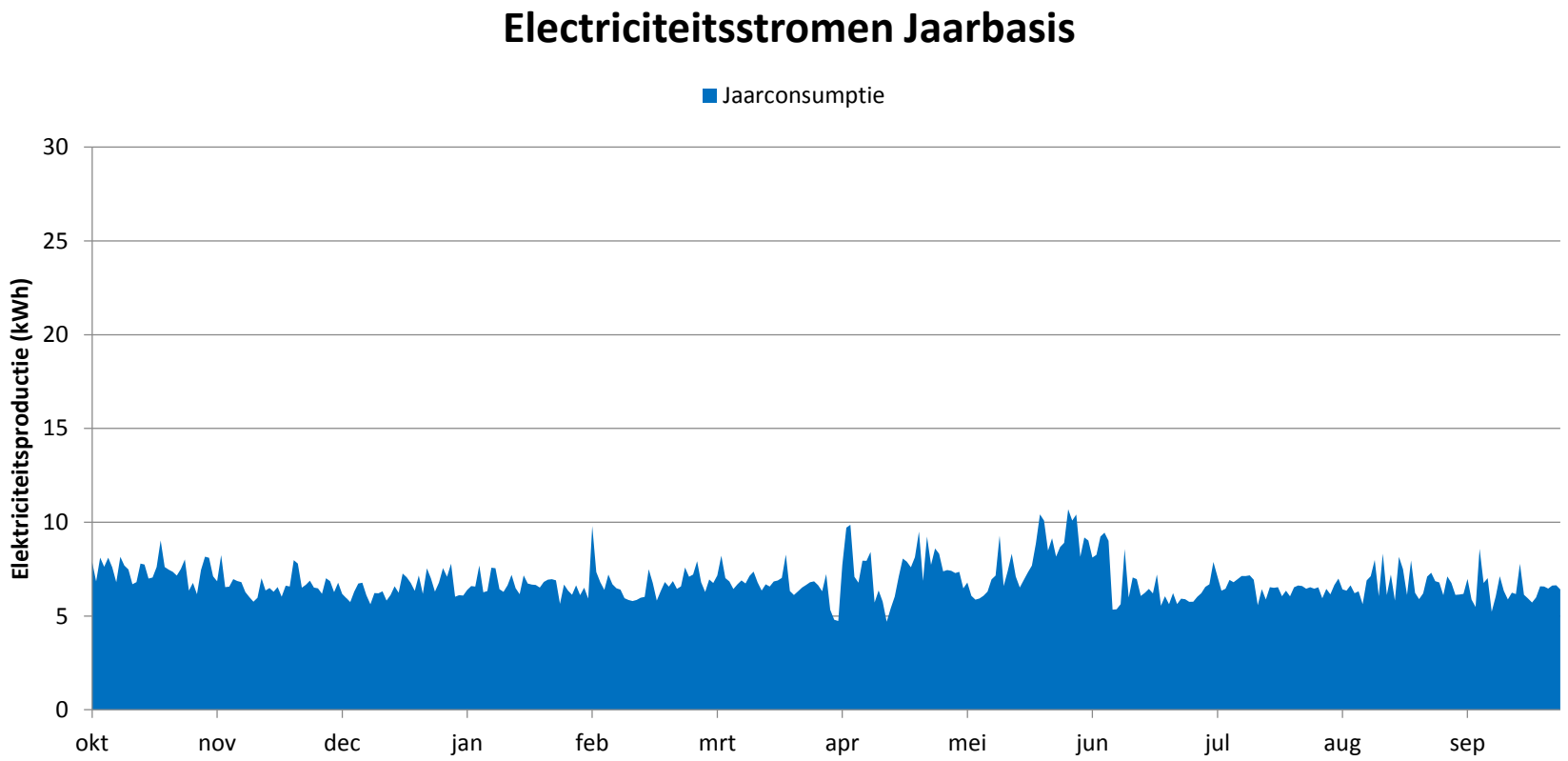
Opslag van elektrische energie



Data: Driepersoonshuishouden, Deventer
01-10-2015 t/m 30-09-2016

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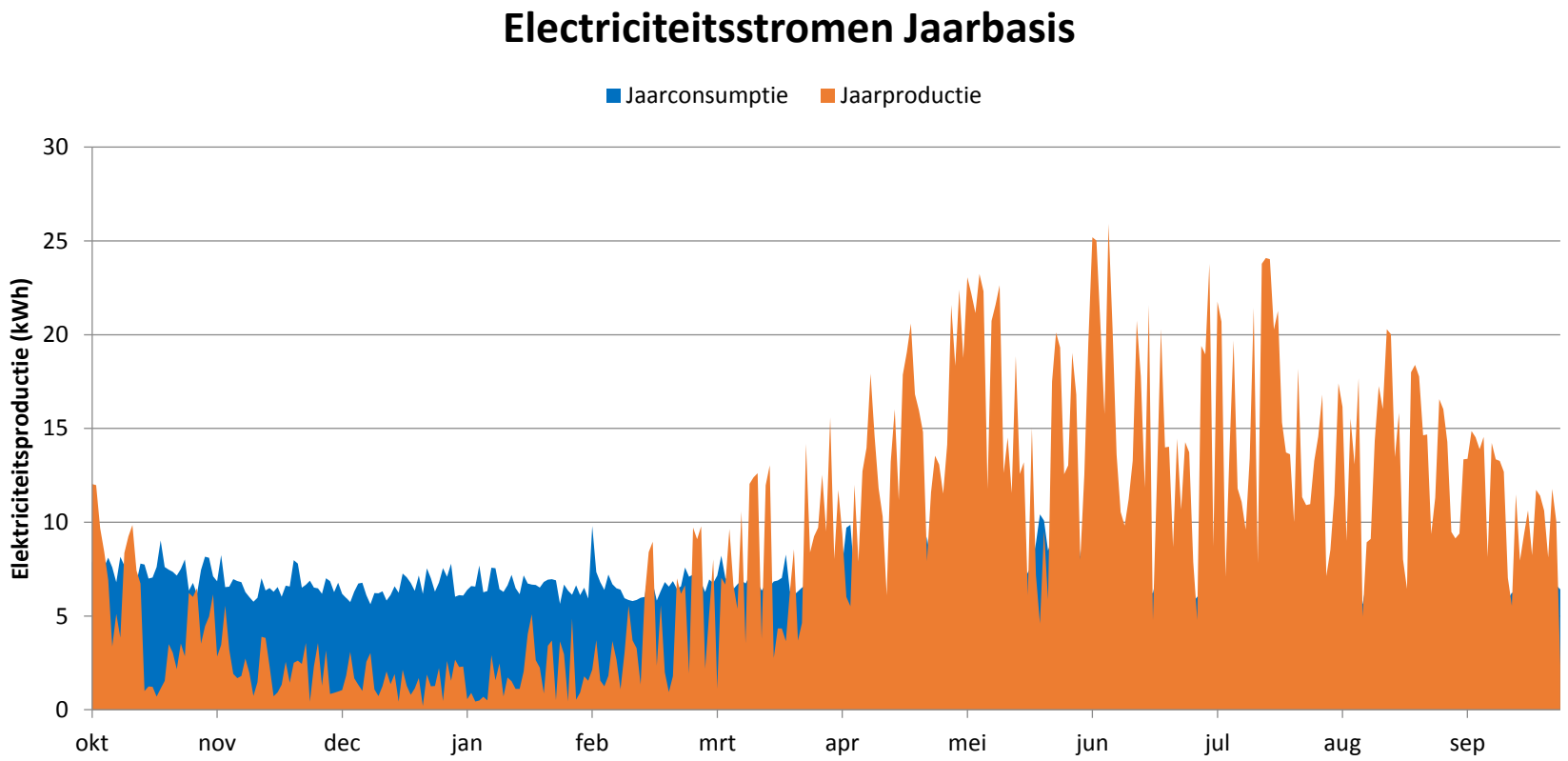
Opslag van elektrische energie



Data: historische data KNMI (Globale Straling in J/cm^3) omgerekend naar opwekkingscapaciteit in kWh.
01-10-2015 t/m 30-09-2016

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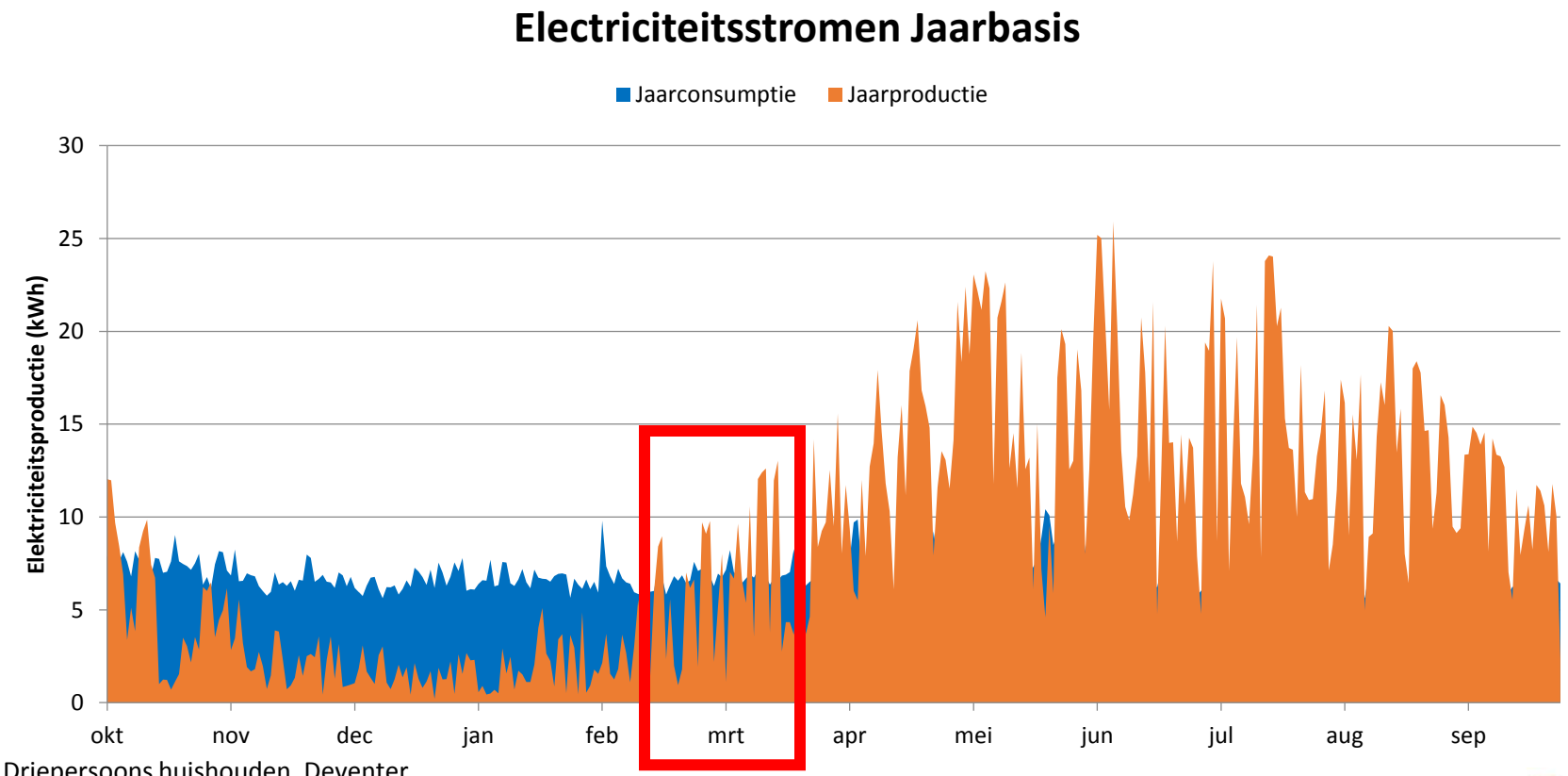

Data: Driepersoons huishouden, Deventer
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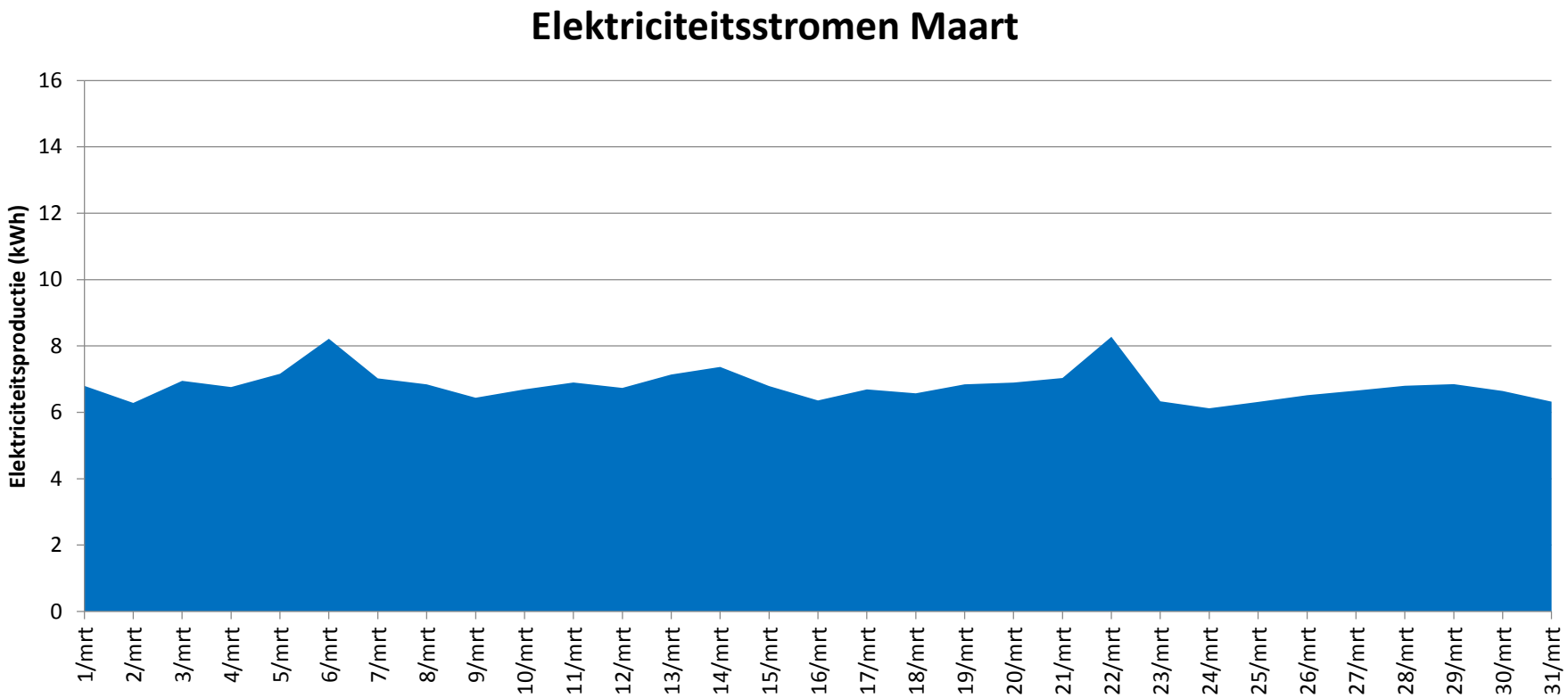

Data: Driepersoons huishouden, Deventer
01-03-2016 t/m 31-03-2016

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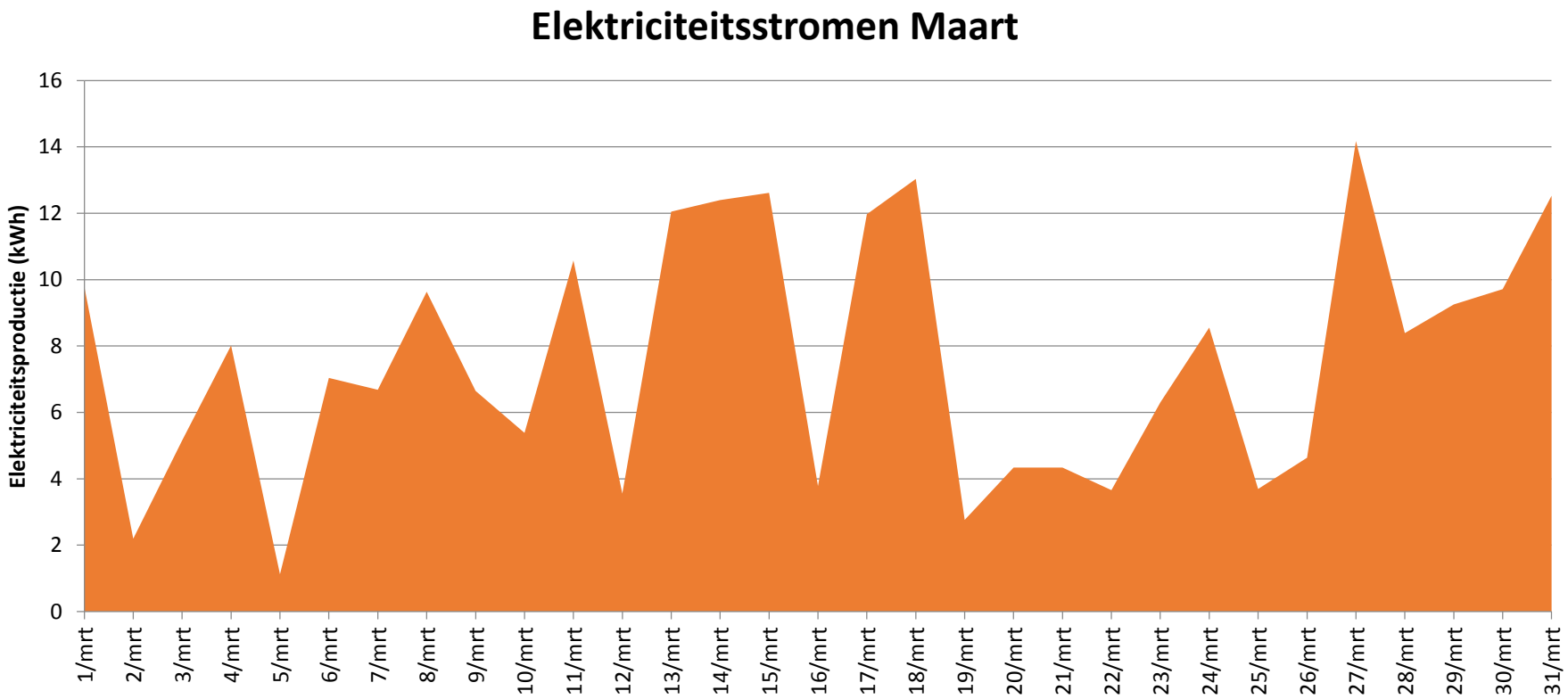
Opslag van elektrische energie



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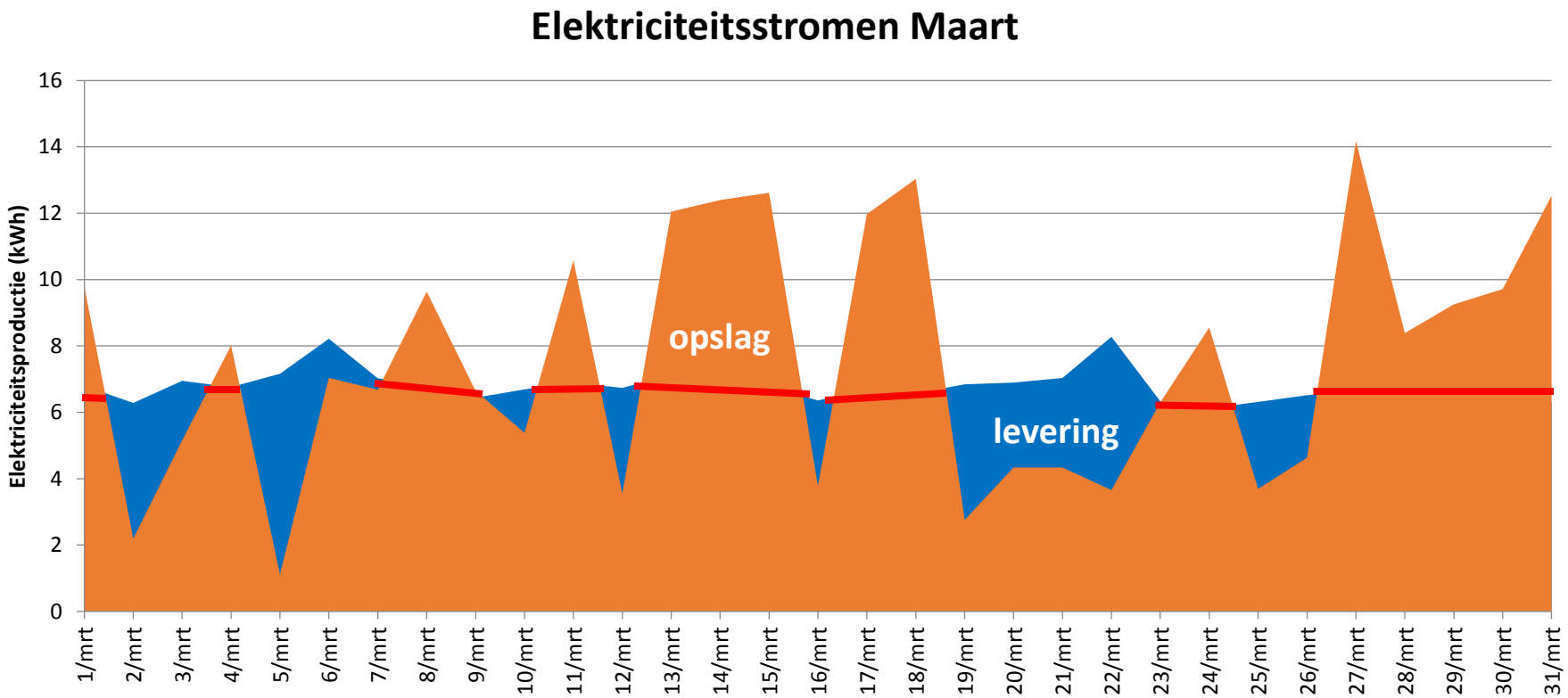

Data: Driepersoons huishouden, Deventer
01-03-2016 t/m 31-03-2016

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Opslagtechnologie

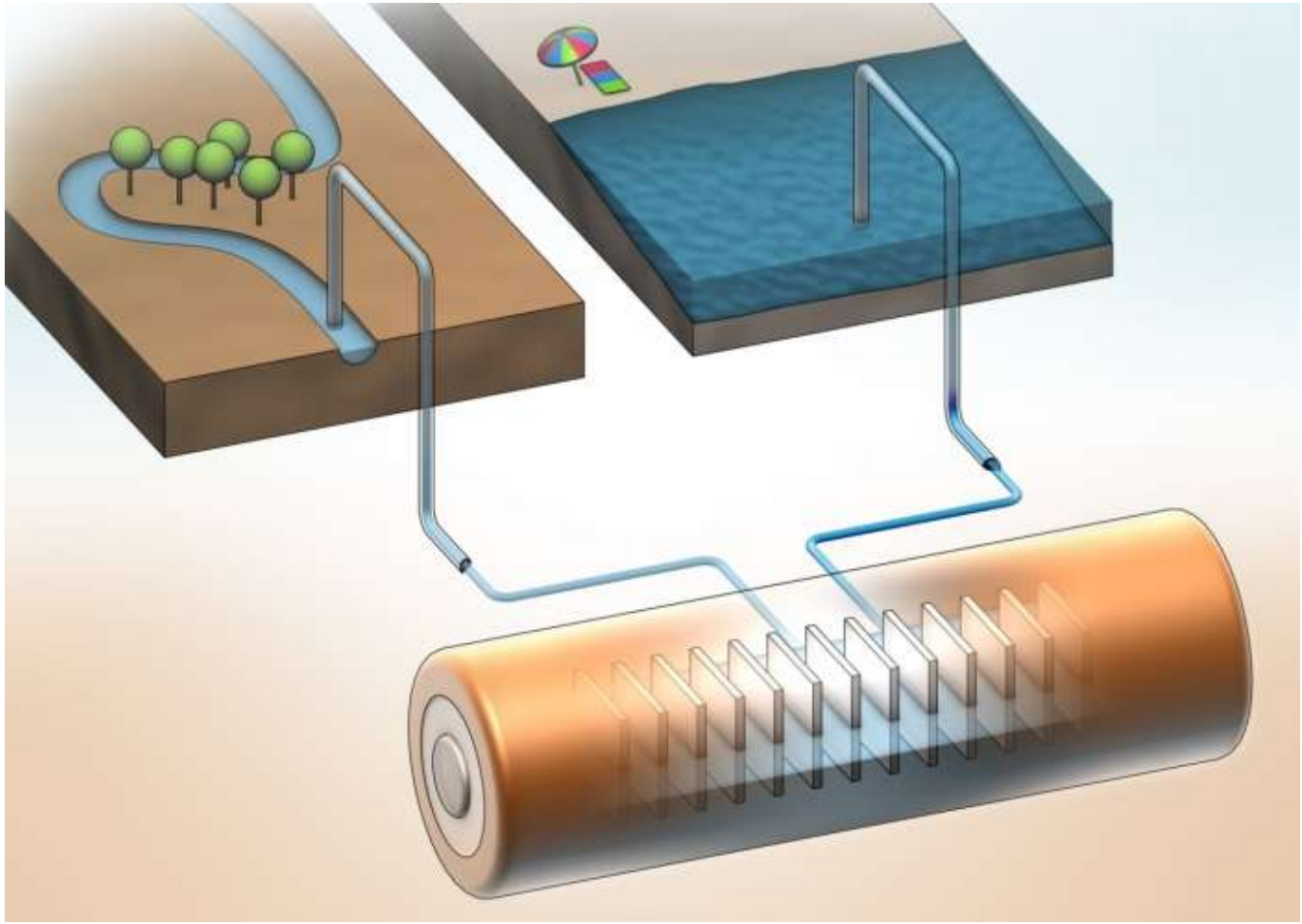
- Mechanische energie
  - PHS, CAES, vliegwiel
- Electrochemische energie
  - Conventioneel, NaS, flowbatterij
- (Thermisch, elektrisch, chemisch)

Veiligheid

Ingrediënten

Geografie

Energie uit osmotische gradiënt



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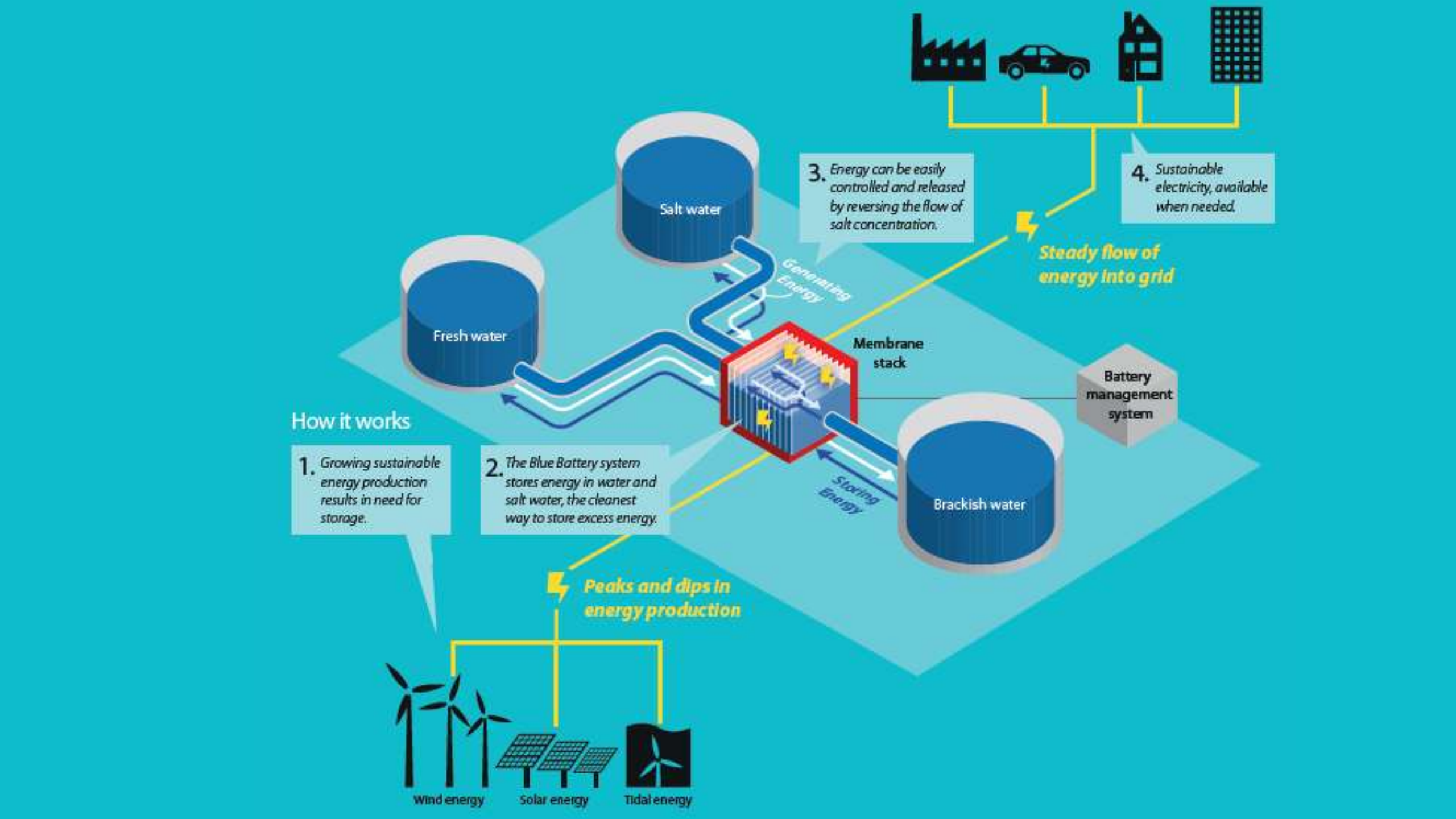
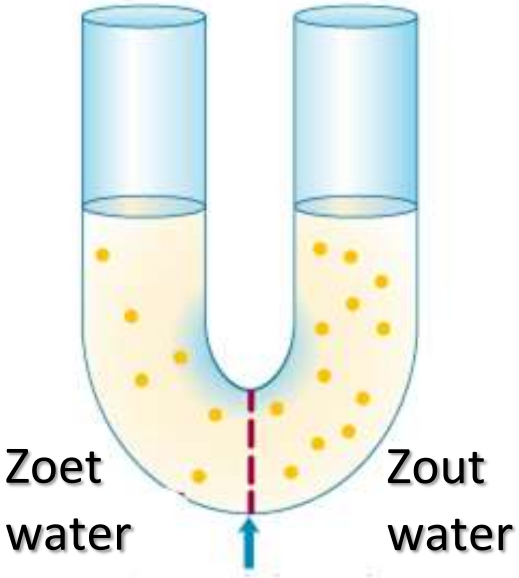
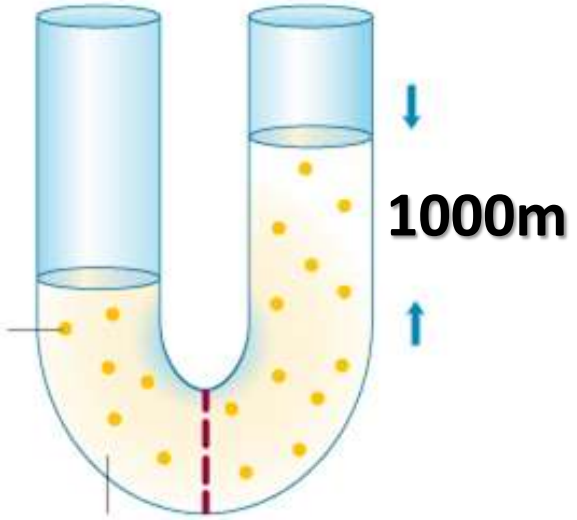

How it works
1. Growing sustainable energy production results in need for storage.
2. The Blue Battery system stores energy in water and salt water, the cleanest way to store excess energy.
3. Energy can be easily controlled and released by reversing the flow of salt concentration.
4. Sustainable electricity, available when needed.
Salt water
Fresh water
Brackish water
Membrane stack
Battery management system
Generating Energy
Storing Energy
Steady flow of energy into grid
Peaks and dips in energy production
Wind energy
Solar energy
Tidal energy





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Blue Battery

DUURZAAM

SCHAALBAAR

VEILIG

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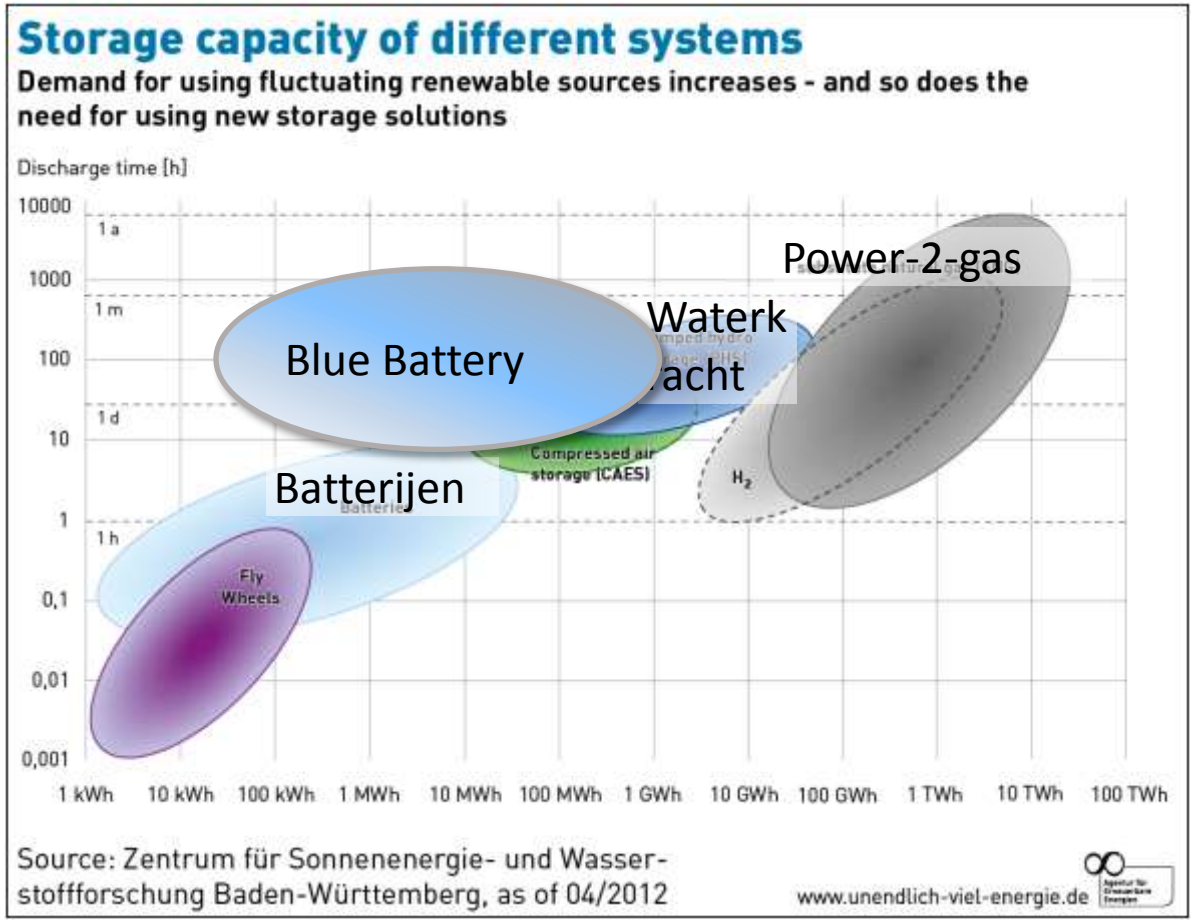
Marktpotentie



- **Capaciteitsmedium** goedkoop, **conversie** duur

  → ideaal voor **middellange opslag** (dag – week)
- Snel **groeiend segment** binnen energieopslag (buffer zon – wind)

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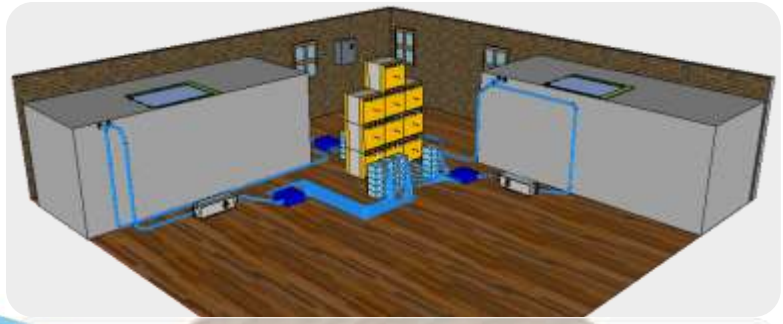
Toepassing

- Micro-grids
  - Bedrijventerreinen
  - Energieparken
  - Eilanden



- Verlaging grid connectie
- Hogere capaciteit mogelijk
- Verhoging eigenopgewekte elektriciteit
- Verlaging (E)ROI

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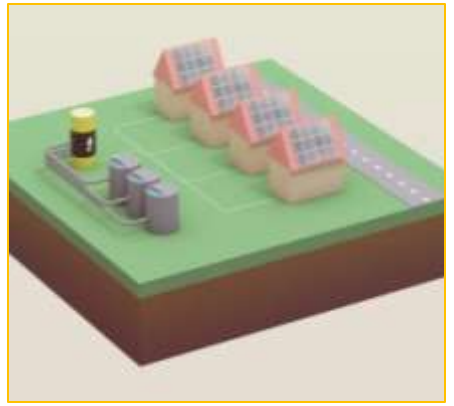
Ontwikkeling



- Drie PhD's
- Twee MSc-theses
- Meerdere patenten

TRL 1 TRL 2

2014 - 2015

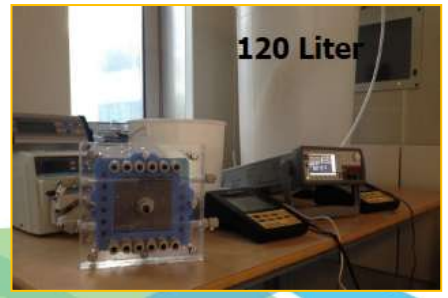
TRL 3 TRL 4

- Prototypes
- Ontwikkeling automatisering
- Subsidies

- Automatisch systeem
- Pilot test op The Green Village

TRL 5 TRL 6

2016 - 2017



2018 2020

TRL 7 TRL 8 TRL 9

- Productontwikkeling
- Certificering
- Opschaling en verkoop

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Team

David Vermaas
Chief Technology Officer

Jan Post
Managing Director

Jiajun Cen
Chief Financial Officer

Jan Willem van Egmond
Research & Development

Emil Goosen
Product Developer

Edoardo Cometti
Business Developer

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Uitbreiding

- Productontwikkeling
- Opschaling technologie
- Verdere automatisering

➔ **Vacature Mechatronisch ingenieur**

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Team van partners

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Missie AquaBattery

- Ontwikkelen en Verkopen van Blue Battery (verschillende varianten)
- Goedkoper en schoner maken van elektriciteit
- Hernieuwbare energie beschikbaar voor iedereen!

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Thank you for your attention!

twitter.com/AquaBattery

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