



Federal Ministry
for Economic Affairs
and Energy



MITTELSTAND
GLOBAL
ENERGY SOLUTIONS
MADE IN GERMANY



energy solutions – made in Germany

Smart Harbour Application Renewable
Integration Concept (SHARC)

Tobias Metzner

06.10.2020



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- (1) Project Concept & Structure
 - (2) Model Region & Project Goal
 - (3) Implementation
 - (4) Future Outlook

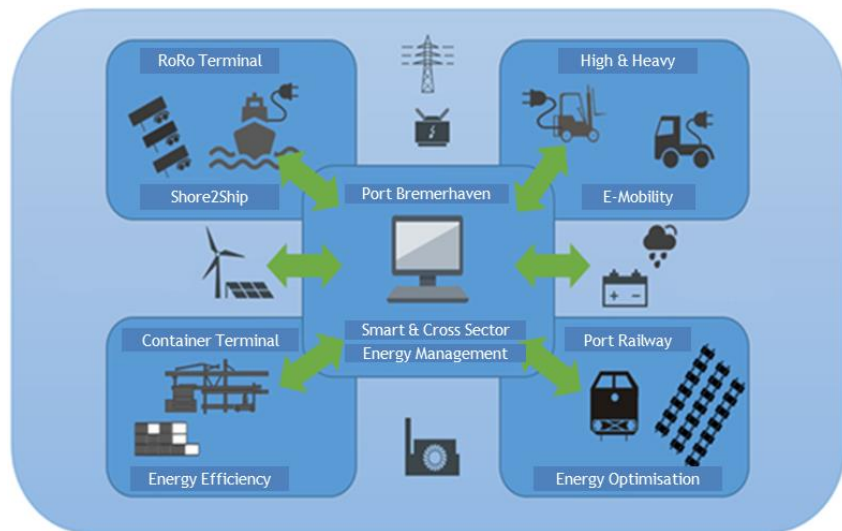


Project Concept & Structure

+ SHARC

Project Concept

bremenports:



- + Energy Transition in transport: How can we contribute?
- + Lower energy consumption in port: How?
- + Integrate renewable energy sources: Which?
- + Energy storage: Which?

+ Funded by the Federal Ministry of Economic Affairs and Energy

- + Key Words:
 - + Sector Coupling
 - + Synthetic Fuels
 - + Smart Micro Grids in Ports

SHARC

Project Structure

bremenports

Supported by:



Federal Ministry
for Economic Affairs
and Energy

on the basis of a decision
by the German Bundestag

Project Sponsor



Project Lead

Management
Service



Project Lead

- Overall Coordination
- Link to Project Sponsor
- Site coordination
- Sector Coupling
- Energy Data
- Development Business Concept

Port Operators

- Process Know-How
- Energy Data
- Infrastructure

Data Collection &
Processing



Deutsches
Forschungszentrum
für Künstliche
Intelligenz GmbH



Simulation Tool Support



Methodology &
Environmental
Assessment



Institut für Energie und Kreislaufwirtschaft



Technology
Partner



Container Terminal
Operator



RoRo Terminal
Operator



Energy Supplier



Technical
Services

Methodology & Theoretical
Preparation for:

- Data Collection
- Data Processing
- Simulation Support

Tools & Methodology:

- Simulation Tool
- Development of KPIs
- Concept for Sustainable Energy Systems

Methodology & Theoretical
Preparation for:

- Business Models
- Logistics Processes
- Environmental Database
- Validation of Simulation Tools

Tools & Technology

- Simulation Tool
- Concept for Sustainable Energy Systems
- Development of Investment Plan





International Port Bremerhaven

Goals for the Location and Infrastructure

- + CO₂-neutral port infrastructure by 2023
- + Integrate terminal operators needs and maintain competitiveness.
- + Close cooperation on a regional basis with other energy related projects.
- + Implementation of measures from SHARC project → Investment Plan

bremenports :



Implementation

- + Project Proposal & Approval

- + Collection of Data:

- + Energy Consumption
- + Logistic Processes
- + Rules & Regulations
- + Requirements

- + Modelling of Future Scenarios

- + Definition of Preferred Solution and Development of Investment Plan

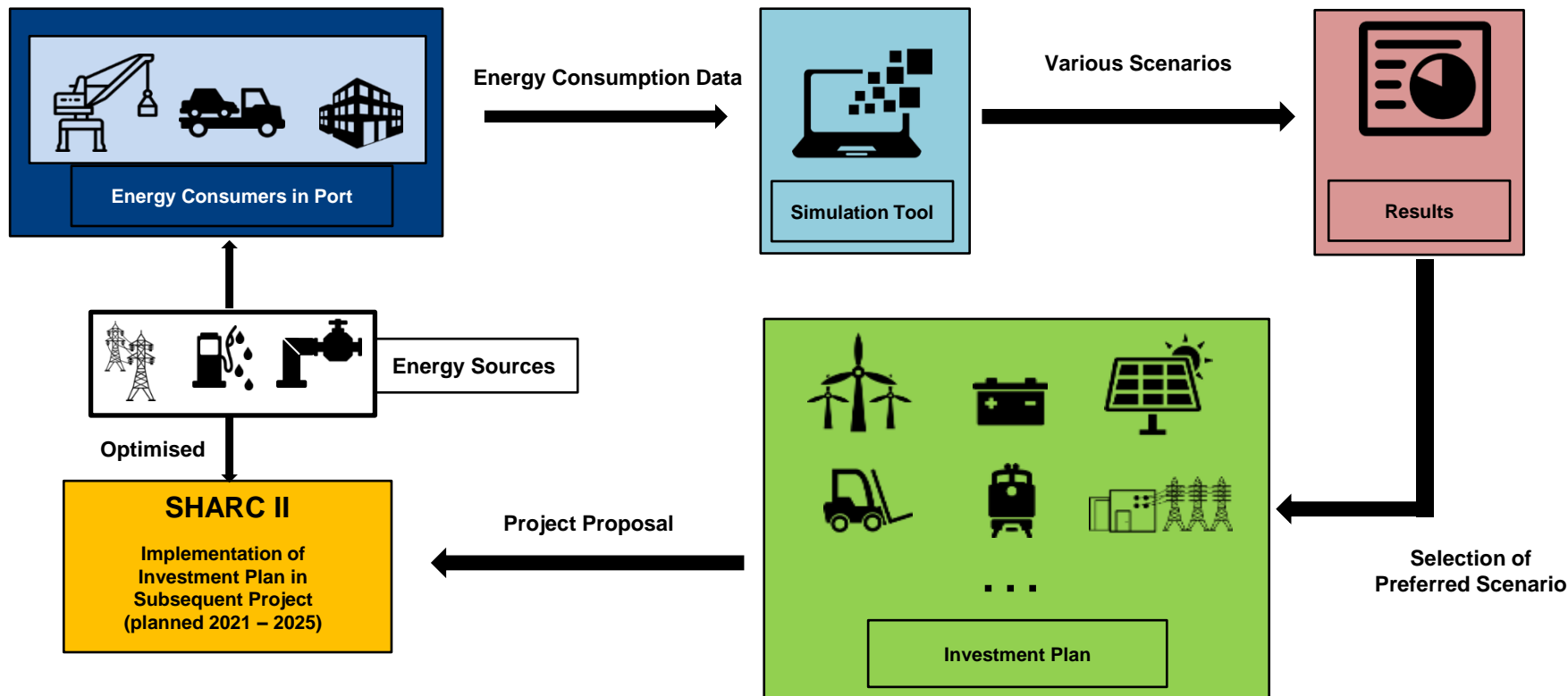
**Project
Development**

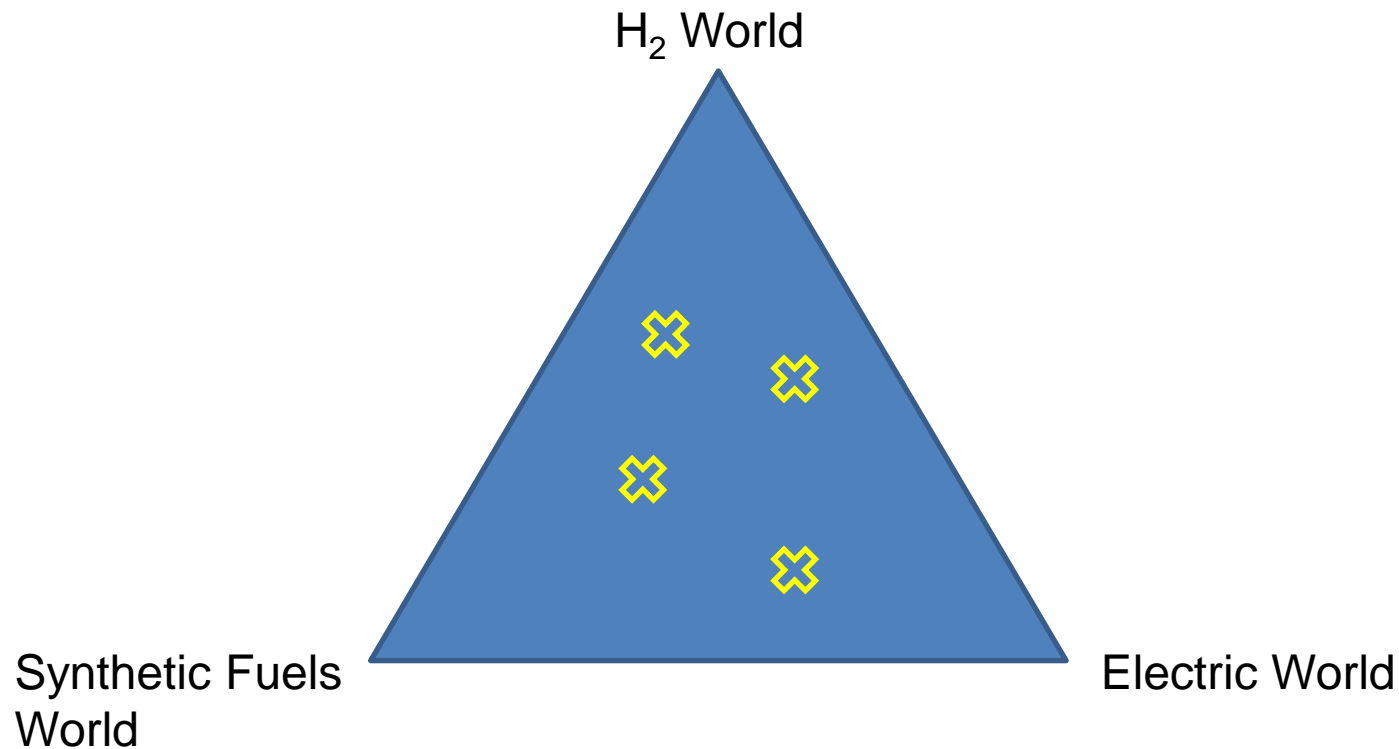
**Phase 1
Concept**
01.2019-12.2020

Possible Subsequent Project(s)

- + Implementation of new Energy Infrastructure
- + Implementation of new Technologies
- + Integration of optimised Processes
- + Implementation of new Business Concepts

**Phase 2
Demonstration
(planned)**

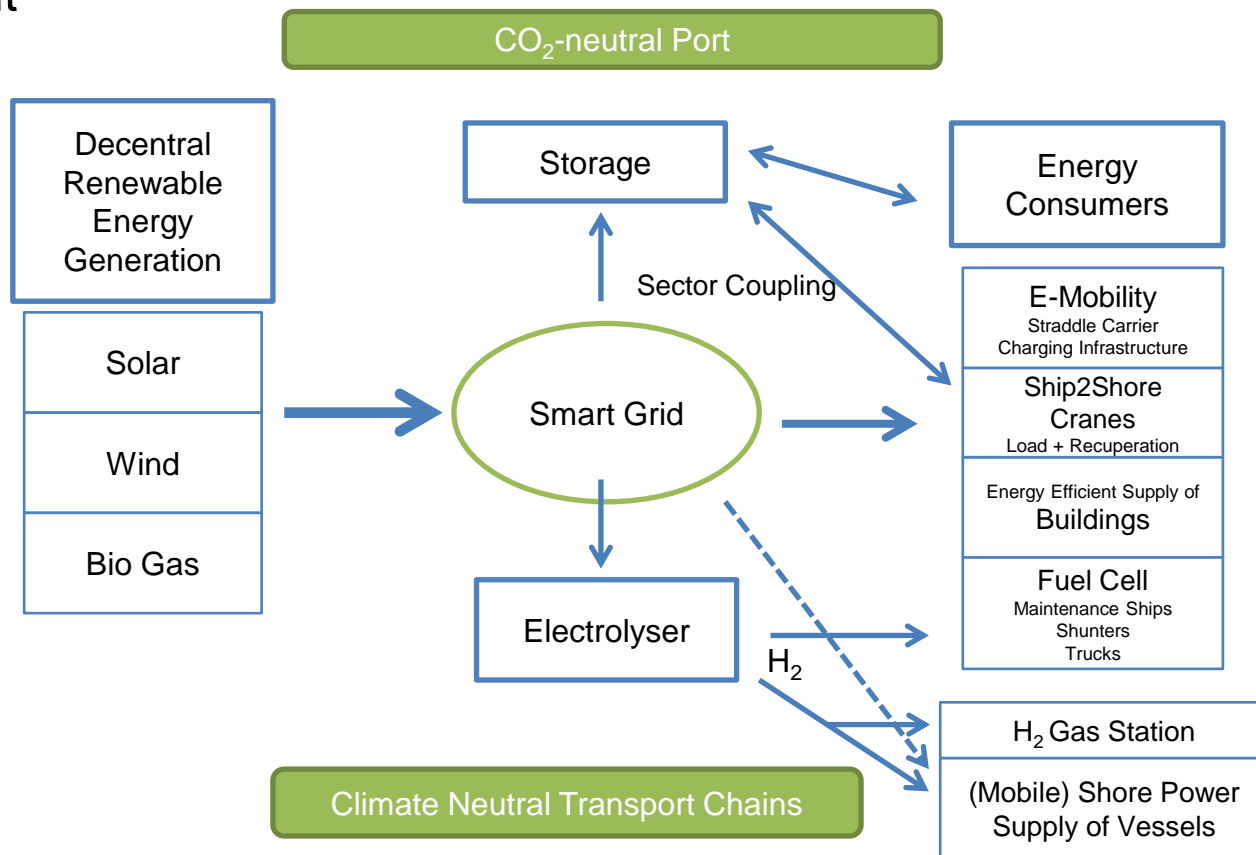






Future Outlook
SHARC II

- + Exploitation and Integration of Renewable Energy Sources
- + Integration of Storage Technologies
- + Implementation of a Smart Grid
- + Pilot Projects to Decarbonise Operational Processes
 - + Straddle Carrier
 - + Maintenance Ships
 - + Transport within the Port / Between Terminals
 - + Shunting Locomotive
 - + Supply Stakeholders Outside the Port with Surplus Energy





www.bremenports.de



Thank You!

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