Carsten Hoyer-Klick, German Aerospace Center, Energy Systems Analysis

Decentralisation of the Energy System

Science as an advisor to the public

Data and information are key elements for the management of future energy systems

Open and transparent modelling to inform the public debate

Open and shared data to improve the management of the energy system

Open data for a more realistic image of the current and future energy system

Open data as a key enabler for the evolution of our energy system

Suitable and clear licenses are needed as a default: e.g. CC-BY 4.0
96/9/EC database directive causes problems with reusing data

ETIP Wind

EUROPEAN TECHNOLOGY & INNOVATION PLATFORM ON **WIND ENERGY**

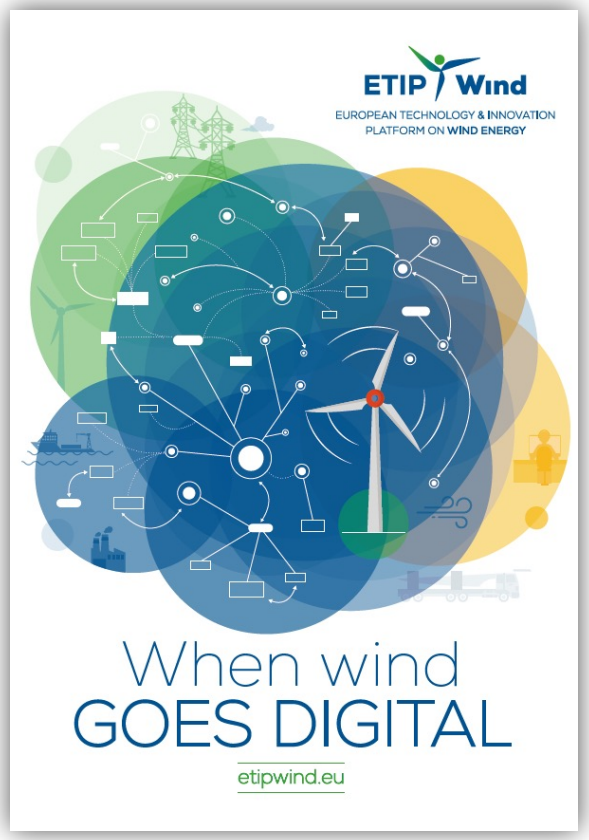
Data sharing in renewable energy: experiences and incentives

Mike Anderson
Chair ETIPWind Advisory Group

Performance data ownership rights:

Do we need, in general, to shift from equipment provider owning the data to the plant operator?

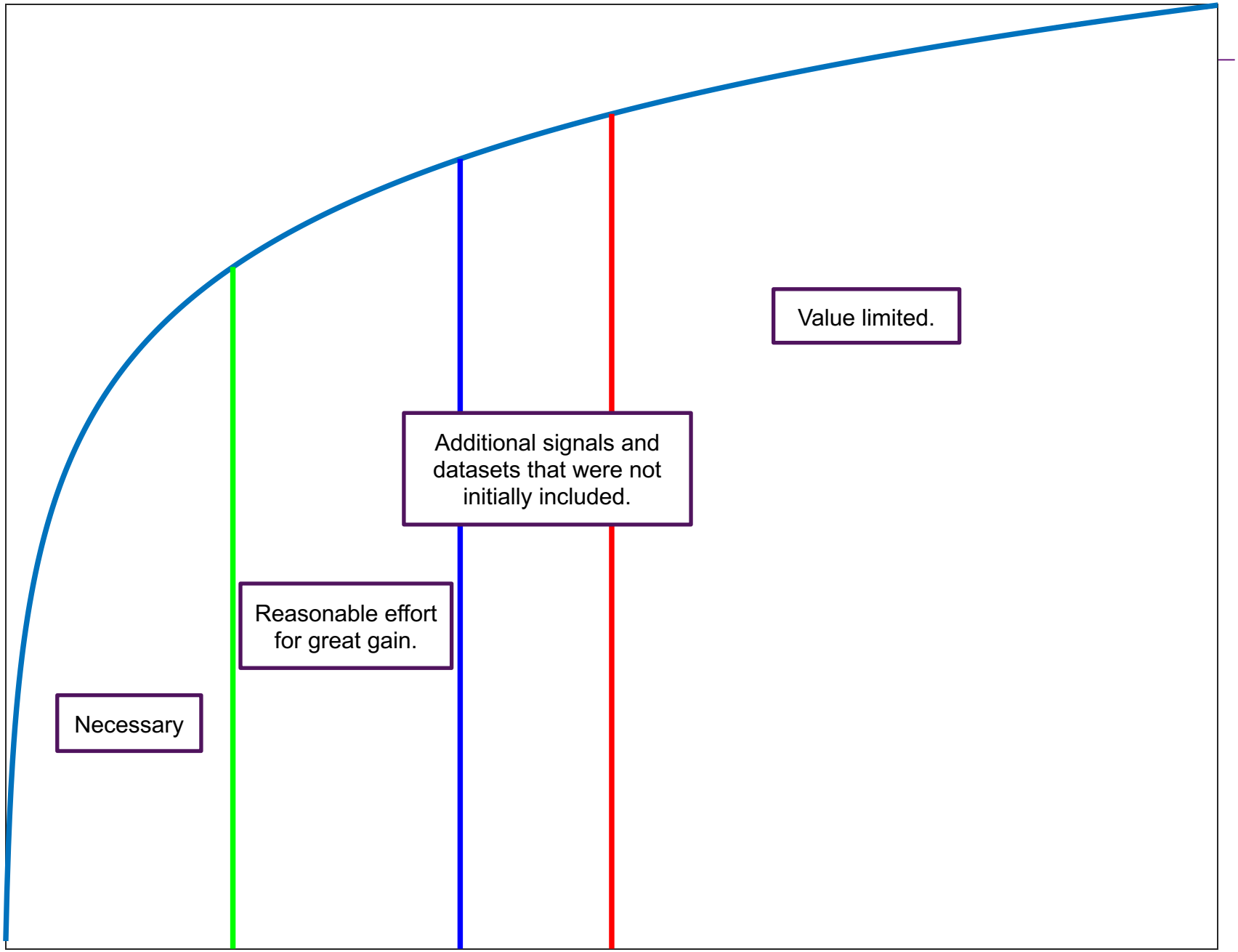
- Customer owns the data
- Sharing considerations:
  - Strategic (competition, security, etc.)
  - Commercial (e.g. get paid for it)
- Sandbox technology
  - Sharing results, not the code.
  - R&D
  - What else?



ETIP Wind

Skellefteå Kraft

Relationship between dataset and value.



Tobias Söderlund, 2022
Skellefteå Kraft AB

Workshop with DG ENER – "Data sharing in renewable energy: experiences and incentives"

Emanuel Vallarella

R&D Junior Engineer in Power electronics and Solar PV architectures

Department name: Power Conversion Technology Laboratory, Nuremberg Research Center
Author's name: Emanuel Vallarella
Date: 24/02/2022

HUAWEI TECHNOLOGIES CO., LTD.

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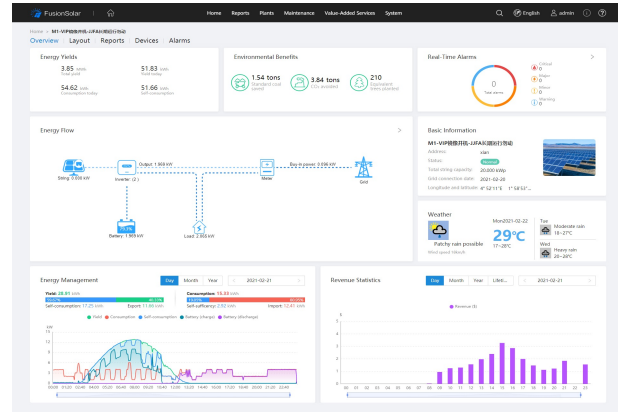
Driving data-sharing in the renewable energy industry

Can mining PV plant data generate extra value? Can this data mining foster innovation? What frameworks or agreements are needed and what are the overall advantages and disadvantages?



1- FusionSolar as monitoring tool to increase performance of high-resolution PV assets

- FusionSolar is a monitoring platform and the server can be owned by the client
- Are there advantages/disadvantages of data sharing by the client?
+ Better understanding of BoS components and PV plant
- Vulnerability in sharing own performance data
- FusionSolar has a neutral position until a data-sharing-framework is agreed upon

2- Data sharing to foster innovation

- Experience from the H2020 TRUST-PV project
- Different stakeholders with different data-set jointly sharing and working together to create cross-sector innovation
- Example of innovation: PV inspection techniques researched in TRUST-PV and advance diagnostic of PV plants in terms of failures analysis

Thank you

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TRUSTPV

SOLAR PV, PERFORMANCE & RELIABILITY

inaccess

Data Sharing in Renewable Energy: Experiences

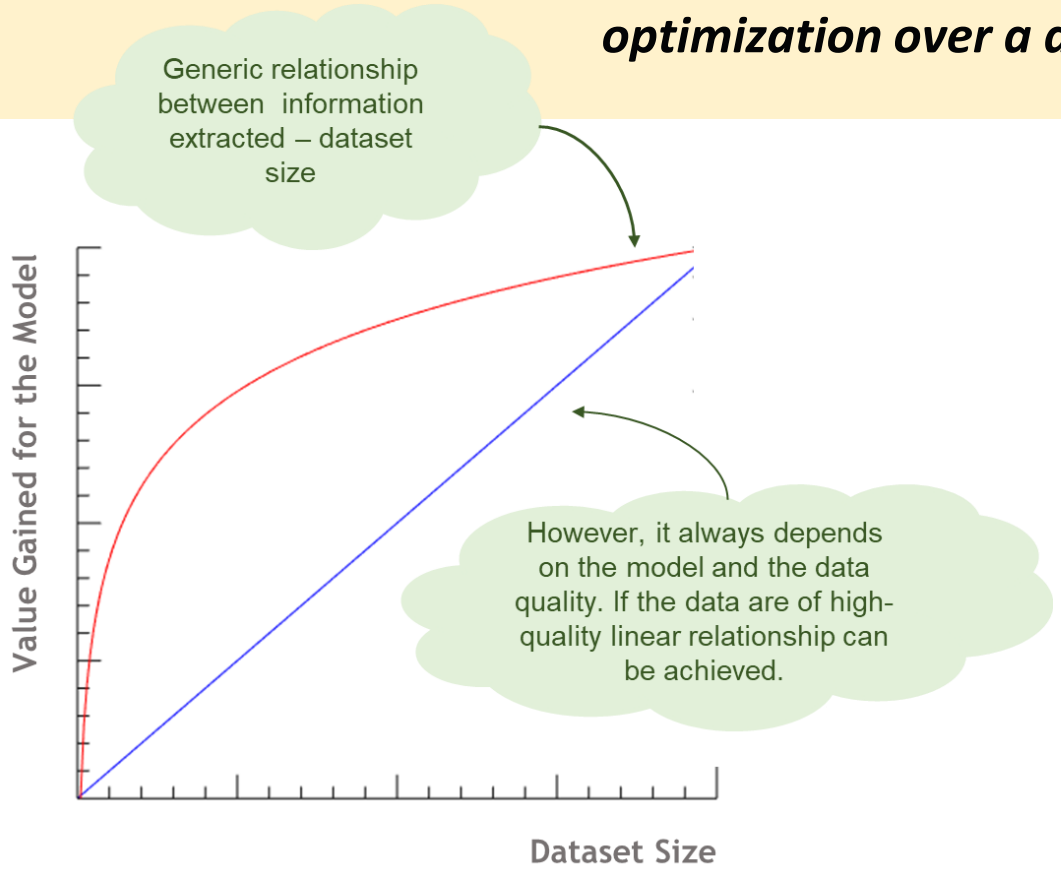
Vasso Katsiki

Experiences & Observations

>50%

of data are analytics & visualizations → Essential for the overall **performance** & **asset degradation** evaluation

Data also feed ML-based models related to Anomaly Detection, Asset Production Forecasting, Predictive Maintenance that are valuable for the plant participation in the energy markets or storage flexibility optimization over a day-ahead horizon.



Availability, Size & Quality of Datasets Increase Prediction Accuracy

Vasso Katsiki

Data Sharing in Renewable Energy

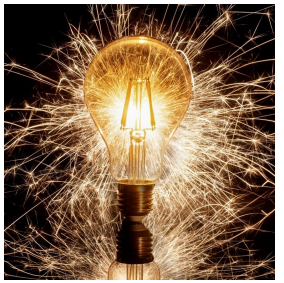
Online Workshop, DG ENER/EURE, 24th February 2022

ENERGIE STEIERMARK

Experiences

- Renewable generation (hydropower, wind, PV), storages and sector coupling
- Energy grid operation (electricity, gas, DH)
- Sustainability Hub / Next Incubator

Perspectives



- Generation data over a geographical area or market area for forecasting models and optimization
- Inclusion of weather, satellite and other ambient data
- Overall system optimization at regional and transnational level
- Availability of real-time data (decentralized) for new business models (e.g. P2P- trading, energy communities) and smart grid operation
- Incentive: Funding supplement for pilot projects with obligatory participation in accompanying real-time data sharing

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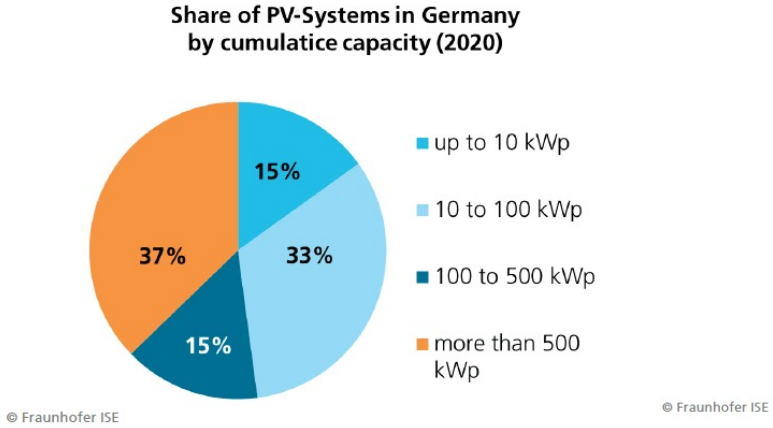
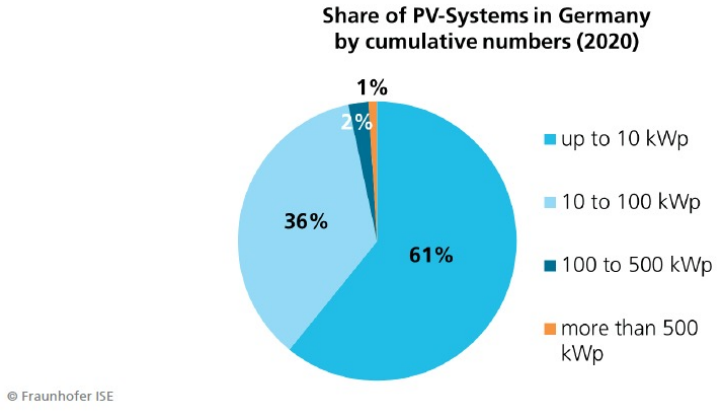
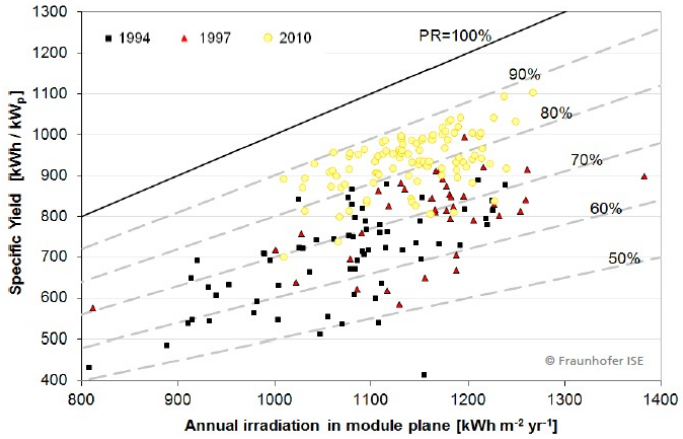
Experiences Photovoltaic Sector

- Dipersed European market (residential, commercial, utility, diverse InPV designs)
- Distributed small- and medium scale PV plants often with poor Performance data
- Benefits for PV prognosis, Operation and Maintenance, grid, new business models, scientific insights
- Data silos vs. interoperability
- Necessary: georeferenced PV Power Plant ontology or Information model
- Towards a distributed federated Smart Services Platform including Federated Learning







Source Photovoltaic Report FhG ISE, https://www.ise.fraunhofer.de/de/veroeffentlichungen/studien/photovoltaics-report.html

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