



Engaging with Industry at Springer Nature -  
Insights for the Energy Sector

Dr Chris Bendall  
Director Physical Sciences  
Corporate Markets

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# Agenda

1

Corporate Business  
Development  
At Springer Nature

Research Trends in  
Industry

2

3

Future Trends in  
Energy

# Dedicated Corporate Business Development

## Corporate Markets –

### *Aligning our Sales and Editorial Organisation with our Industry Customers*

Focused on Increasing Market Share and Customer Retention through:

1. Data Driven Engagement
2. Being Excessively Customer Centric
3. Value / ROI vs. Collection Building driven - “Only want to pay for what they need”
4. Providing Industry Feedback to Editorial to Enhance the Relevance of our Portfolio

Powered by Dedicated Corporate Markets Business Development Team

# Applying our Knowledge to Build Content Collections

## *Vertical and Customer Specific*

- Two Key Types of Collection
  - Industry Sector Collections – based on usage of key customers
  - Tailored Collections – based on specific research focus of the customer

Industry Profile  
Mostly Data Driven

Customer Profile  
Defined by Consultation

# Industry Sector Collections promise

*“Industry and usage driven content collections (Journals AND eBooks)”*

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**Key subject areas of interest include:**

- ▶ Remote Sensing, GIS, and Mapping
- ▶ Geophysics, Seismic Tools, Signal Processing and Image Analysis
- ▶ Geology, Mineralogy, Geochemistry and Oceanography
- ▶ Recovery, Reactivation, Drilling, and Offshore Engineering
- ▶ Environmental Chemistry and Monitoring
- ▶ Mechanical and Industrial Engineering
- ▶ Pumping and Transportation
- ▶ Storage and Operating Procedures
- ▶ Safety and Environmental Protection
- ▶ Industrial Chemistry/Chemical Engineering
- ▶ Organic and Polymer Chemistry and Nanotechnology
- ▶ Facility Management, Maintenance and Operation
- ▶ Pollution Control
- ▶ Probability Theory, Statistical Analysis, and Quantitative Finance
- ▶ Operations Research, Finance and Cost Control
- ▶ Software Engineering, Artificial Intelligence and Process Control
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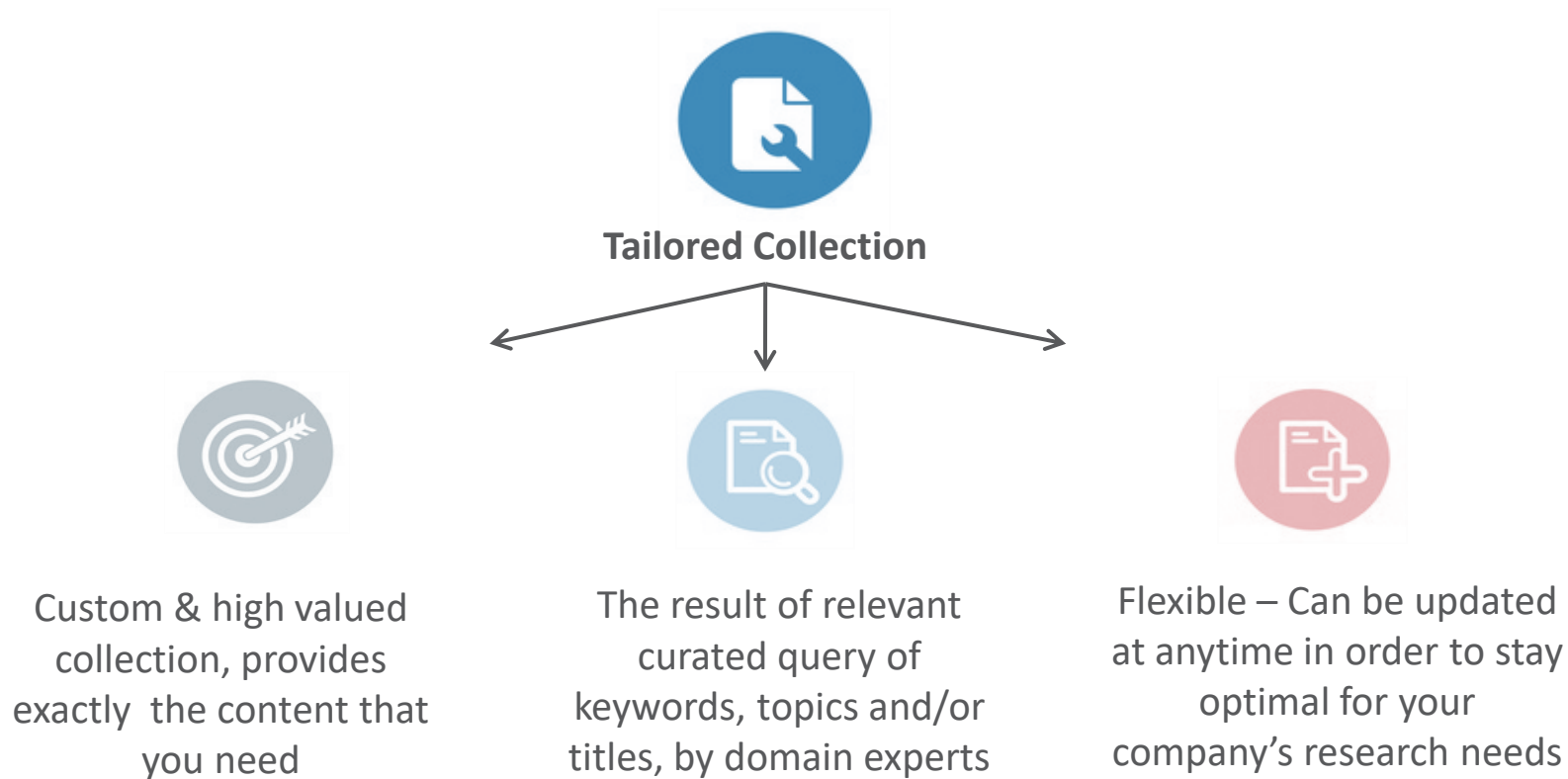
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- ▶ Optics and Photonics
- ▶ Optoelectronics
- ▶ Sensor Technology
- ▶ Signal Processing
- ▶ Telecommunications



## Tailored Collection - “Create your own Tailored Collection”




# Keyword list for Integrated Oil & Gas Company Tailored Collection

(by Chris Bendall, Industry Director)

( Petroleum Gas Refining and Processing ) OR ( catalysis and catalysts + Petroleum ) OR ( catalysis + Petroleum ) OR ( heterogenous catalysis + petroleum ) OR ( adsorption + petroleum ) OR ( biocatalysis + petroleum ) OR ( desorption + petroleum ) OR ( nanocatalysis + petroleum ) OR ( surface reactions + petroleum ) OR ( homogeneous catalysis + petroleum ) OR ( acid catalysis + petroleum ) OR ( Wacker process + petroleum ) OR ( catalysts + petroleum ) OR ( catalyst activation + petroleum ) OR ( catalyst characterization + petroleum ) OR ( catalyst deactivation + petroleum ) OR ( catalyst life cycle + petroleum ) OR ( catalyst loading + petroleum ) OR ( catalyst preparation + petroleum ) OR ( catalyst shapes ) OR ( catalyst suppliers ) OR ( catalyst types ) OR ( crude oil and natural gas ) OR ( crude oil ) OR ( heavy crude oil ) OR ( light crude oil ) OR ( naphthene-base crude oil ) OR ( paraffin-base crude oil ) OR ( sour crude oil ) OR ( sweet crude oil ) OR ( natural gas ) OR ( associated petroleum gas ) OR ( compressed natural gas ) OR ( liquified natural gas ) OR ( natural gasoline ) OR ( natural-gas condensate ) OR ( crude oil characterization ) OR ( crude oil assay ) OR ( ASTM and UOP test methods ) OR ( crude oil test methods ) OR ( crude oil composition ) OR ( hydrocarbons ) OR ( non-hydrocarbons ) OR ( crude oil properties ) OR ( crude oil chemical properties ) OR ( crude oil combustion properties ) OR ( crude oil physical properties ) OR ( gas processing + petroleum ) OR ( acid gas removal + petroleum ) OR ( dehydration + petroleum ) OR ( inert gas removal + petroleum ) OR ( mercury removal + petroleum ) OR ( NGL fractionation + petroleum ) OR ( NGL recovery + petroleum ) OR ( sweetening liquid processes + petroleum ) OR ( tail gas treating + petroleum ) OR ( oil refinery ) OR ( refinery process components + petroleum ) OR ( absorber tower + petroleum ) OR ( accumulators + petroleum ) OR ( boilers + petroleum ) OR ( chillers + petroleum ) OR ( compressors + petroleum ) OR ( condensers + petroleum ) OR ( converters + petroleum ) OR ( coolers + petroleum ) OR ( drums + petroleum ) OR ( evaporators + petroleum ) OR ( filters + petroleum ) OR ( fired heaters + petroleum ) OR ( furnace + petroleum ) OR ( heat exchangers + petroleum ) OR ( packings + petroleum ) OR ( pumps + petroleum ) OR ( reactors + petroleum ) OR ( reboilers + petroleum ) OR ( scrubbers + petroleum ) OR ( separators + petroleum ) OR ( splitter tower + petroleum ) OR ( stripper + petroleum ) OR ( trays + petroleum ) OR ( vent stack + petroleum ) OR ( refinery process units + petroleum ) OR ( acid gas treating unit + petroleum ) OR ( coker + petroleum ) OR ( cracker + petroleum ) OR ( dealkylation unit + petroleum ) OR ( deasphalting unit + petroleum ) OR ( desalter + petroleum ) OR ( desulfurization unit + petroleum ) OR ( distillation unit + petroleum ) OR ( hydroprocessing unit + petroleum ) OR ( hydrotreater + petroleum ) OR ( isomerization unit + petroleum ) OR ( light end unit + petroleum ) OR ( reformer + petroleum ) OR ( solvent refining unit + petroleum ) OR ( visbreaker + petroleum ) OR ( petrochemical processes ) OR ( acetoxylation + petroleum ) OR ( adsorption + petroleum ) OR ( ammoxidation + petroleum ) OR ( aromatization + petroleum ) OR ( carbonylation + petroleum ) OR ( catalytic olefin condensation + petroleum ) OR ( dealkylation + petroleum ) OR ( dearomatization + petroleum ) OR ( dehydrocyclization + petroleum ) OR ( dehydrogenation + petroleum ) OR ( epoxidation + petroleum ) OR ( hydrocyclization + petroleum ) OR ( hydrodimerization + petroleum ) OR ( hydroformylation + petroleum ) OR ( hydrogenation + petroleum ) OR ( oligomerization + petroleum ) OR ( oxidation + petroleum ) OR ( Propylur processes + petroleum ) OR ( petroleum refining processes ) OR ( conversion processes + petroleum ) OR ( alkylation + petroleum ) OR ( cracking + petroleum ) OR ( hydroprocessing + petroleum ) OR ( isomerization + petroleum ) OR ( reforming + petroleum ) OR ( desalting + petroleum ) OR ( chemical desalting + petroleum ) OR ( electrostatic desalting + petroleum ) OR ( separation processes + petroleum ) OR ( dewaxing and deoiling + petroleum ) OR ( distillation + petroleum ) OR ( extraction + petroleum ) OR ( solvent refining + hydrocarbon ) OR ( wax deoiling + hydrocarbon ) OR ( supporting processes + hydrocarbon ) OR ( hydrogen production + hydrocarbon ) OR ( sulfur recovery + hydrocarbon ) OR ( treating processes + hydrocarbon ) OR ( acid treating + hydrocarbon ) OR ( caustic treating + hydrocarbon ) OR ( clay/lime treating + hydrocarbon ) OR ( hydrotreating + petroleum ) OR ( polymerization + petroleum ) OR ( chain-growth polymerization + petroleum ) OR ( photodepolymerization + petroleum ) OR ( photopolymerization + petroleum ) OR ( photostabilization + petroleum ) OR ( polymer quenching + petroleum ) OR ( polymerization curing + petroleum ) OR ( polymerization initiators + petroleum ) OR ( polymerization kinetics + petroleum ) OR ( polymerization mechanism + petroleum ) OR ( precipitation polymerization + petroleum ) OR ( step-growth polymerization + petroleum ) OR ( refining technology licensors + petroleum ) OR ( petrochemicals ) OR ( petroleum product characterization ) OR ( ASTM, IP and CEC test methods ) OR ( petroleum product analysis ) OR ( petroleum product properties ) OR ( polymers + hydrocarbon ) OR ( conductive polymers + hydrocarbon ) OR ( poly 3,4-ethylenedioxythiophene + hydrocarbon ) OR ( poly aniline-co-1-amino-9,10-anthraquinone + hydrocarbon ) OR ( poly N-vinylcarbazole + hydrocarbon ) OR ( poly p-phenylene vinylene + hydrocarbon ) OR ( polyacetylene + hydrocarbon ) OR ( polyaniline + hydrocarbon ) OR ( polydiacetylenes + hydrocarbon ) OR ( poly-o-methoxyaniline + hydrocarbon ) OR ( polypyrrole + hydrocarbon ) OR ( polythiophenes + hydrocarbon ) OR ( Plastics + hydrocarbon ) OR ( polymer blends + hydrocarbon ) OR ( synthetic biodegradable polymers + hydrocarbon ) OR ( thermally degradable polymers + hydrocarbon ) OR ( thermoplastics + hydrocarbon ) OR ( thermosetting plastics + hydrocarbon ) OR ( refining end-products + hydrocarbon ) OR ( heavy distillates and residuum + hydrocarbon ) OR ( cracked residuum + hydrocarbon ) OR ( fuel oil + hydrocarbon ) OR ( gas oil + hydrocarbon ) OR ( lubricants and additives + hydrocarbon ) OR ( vacuum gas oil + hydrocarbon ) OR ( vacuum residue + hydrocarbon ) OR ( light distillates ) OR ( gasoline ) OR ( liquefied petroleum gas ) OR ( naphtha ) OR ( middle distillates ) OR ( aviation fuel ) OR ( diesel ) OR ( kerosene ) OR ( petroleum ether ) OR ( petroleum byproducts ) OR ( ammonia + hydrocarbon ) OR ( hydrogen + hydrocarbon ) OR ( sulfur + hydrocarbon ) OR ( petrochemicals ) OR ( petrochemicals + acid anhydride ) OR ( petrochemicals + alcohols ) OR ( petrochemicals + aldehydes ) OR ( petrochemicals + aliphatic hydrocarbons ) OR ( petrochemicals + amides ) OR ( petrochemicals + aromatic hydrocarbons ) OR ( petrochemicals + carboxylic acids ) OR ( petrochemicals + esters ) OR ( petrochemicals + ethers ) OR ( petrochemicals + halogenated hydrocarbons ) OR ( petrochemicals + heterocyclic aromatic compounds ) OR ( petrochemicals + ketones ) OR ( petrochemicals + organic nitrogen compounds ) OR ( petrochemicals + organosulfur compounds ) OR ( petrochemicals + solvents )



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# Current Research Trends in Industry – Customer Insights

# Industry Insights – Current Industry Research Trends

We've Grouped our Customer's by their Products, Services & Research Foci to better understand their content needs

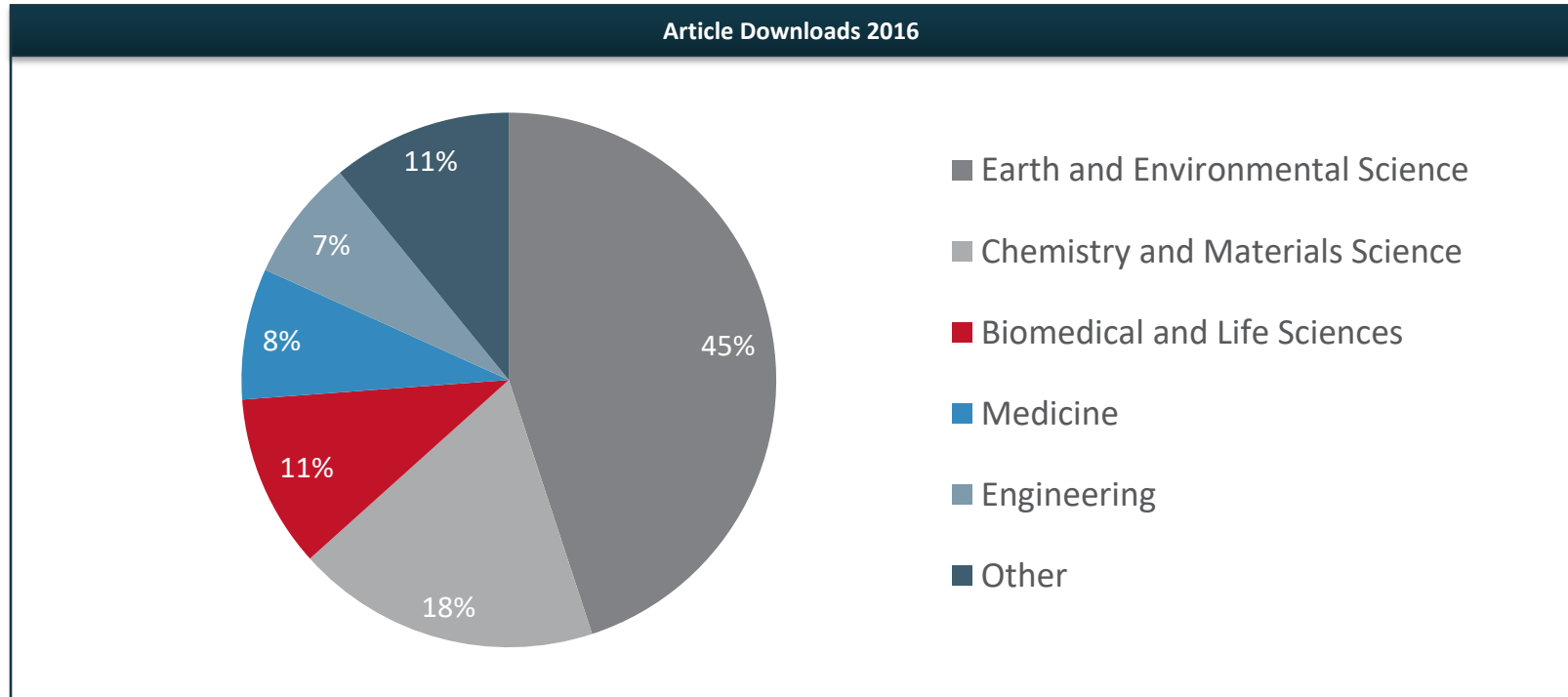
## Energy & Utilities

- Utilities
- Renewables
- Nuclear

## Oil & Gas

- Integrated Oil & Gas
- Exploration & Production
- Oilfield Services (Geoscience/Engineering)
- Petrochemicals

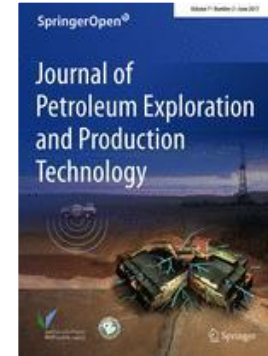
## Integrated Oil & Gas: Article Downloads by Subject Collection



Source: COUNTER Reporting / BW

## Integrated Oil & Gas: Most Popular Journal Subject Areas (Articles)

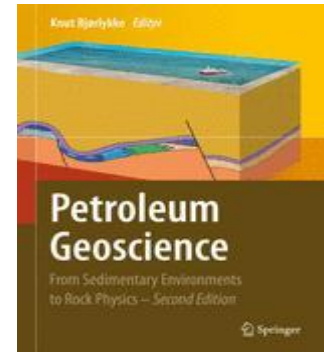
Position	Subject Area*
1	Geology
2	Earth Sciences, general
3	Mineral Resources
4	Industrial Chemistry/Chemical Engineering
5	Environment, general
6	Geophysics/Geodesy
7	Catalysis
8	Geotechnical Engineering & Applied Earth Sciences
9	Analytical Chemistry
10	Metallic Materials
11	Hydrogeology
12	Tribology, Corrosion and Coatings
13	Parasitology
14	Freshwater & Marine Ecology
15	Characterization and Evaluation of Materials
16	Atmospheric Sciences
17	Materials Science, general
18	Geoengineering, Foundations, Hydraulics
19	Microbiology
20	Sedimentology



Source: COUNTER Reporting / BW \* = Springer Product Market Codes

## Integrated Oil & Gas: Most Popular Ebook Subject Areas (Chapters)

Position	Subject Area*
1	COMPUTATIONAL INTELLIGENCE
2	RENEWABLE AND GREEN ENERGY
3	Ecology
4	Quality Control, Reliability, Safet
5	Geophysics/Geodesy
6	Artificial Intelligence (incl. Robotics)
7	Industrial Chemistry/Chemical Engin
8	Civil Engineering
9	Engineering Fluid Dynamics
10	CONTROL
11	ASTRONOMY, OBSERVATIONS AND TECHNIQ
12	Communications Engineering, Network
13	Mechanical Engineering
14	Engineering Economics, Organization
15	Continuum Mechanics and Mechanics o
16	SEDIMENTOLOGY
17	AEROSPACE TECHNOLOGY AND ASTRONAUTI
18	Appl.Mathematics/Computational Meth
19	CIRCUITS AND SYSTEMS
20	Engineering Design

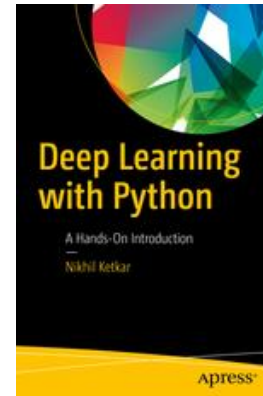
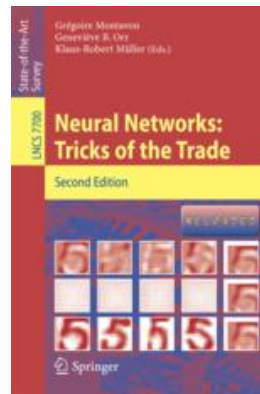
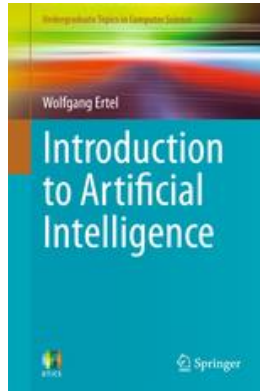
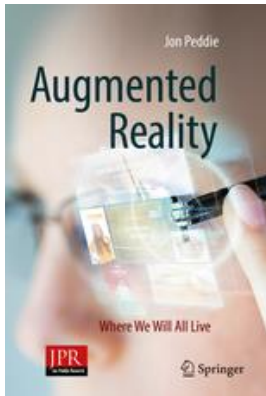


Source: COUNTER Reporting / BW \* = Springer Product Market Codes

## Current Research Trends in Industry

From Customer Usage Insights we see that apart from disciplines which are core to the companies products and services, the most used content relates to

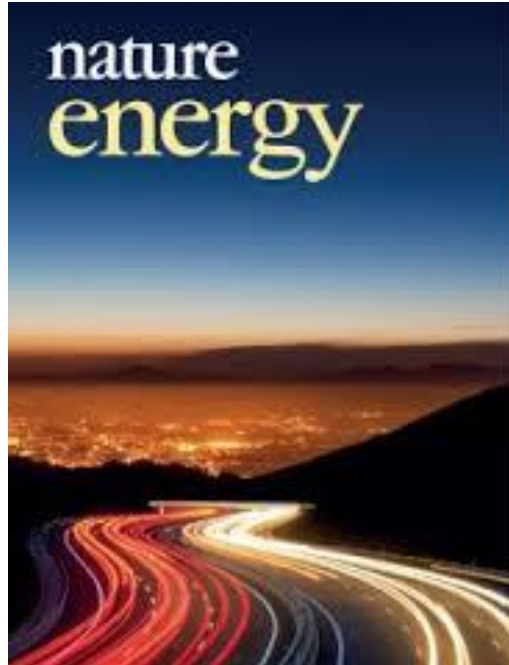
- Artificial Intelligence/ Machine Learning
- Data Analytics
- Augmented Reality/Human Computer Interaction
- Computer Vision
- Robotics



# Future Energy Trends



## Nature Energy – Launched 2016



Technological innovation, often induced by national and subnational policies, can be a key driver of global climate and energy policy ambition and action. A better understanding of the technology–politics feedback link can help to further increase ambitions.

nature  
energy

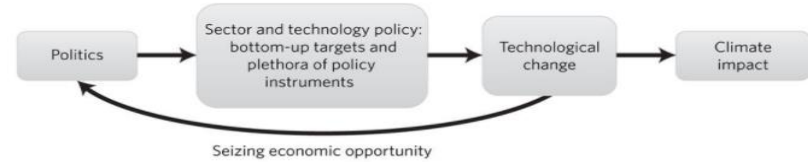
Schmidt & Sewerin, Nature Energy 2017

# Technology as a driver of climate and energy politics

**a** Kyoto paradigm: emissions focus



**b** Paris paradigm: technology focus



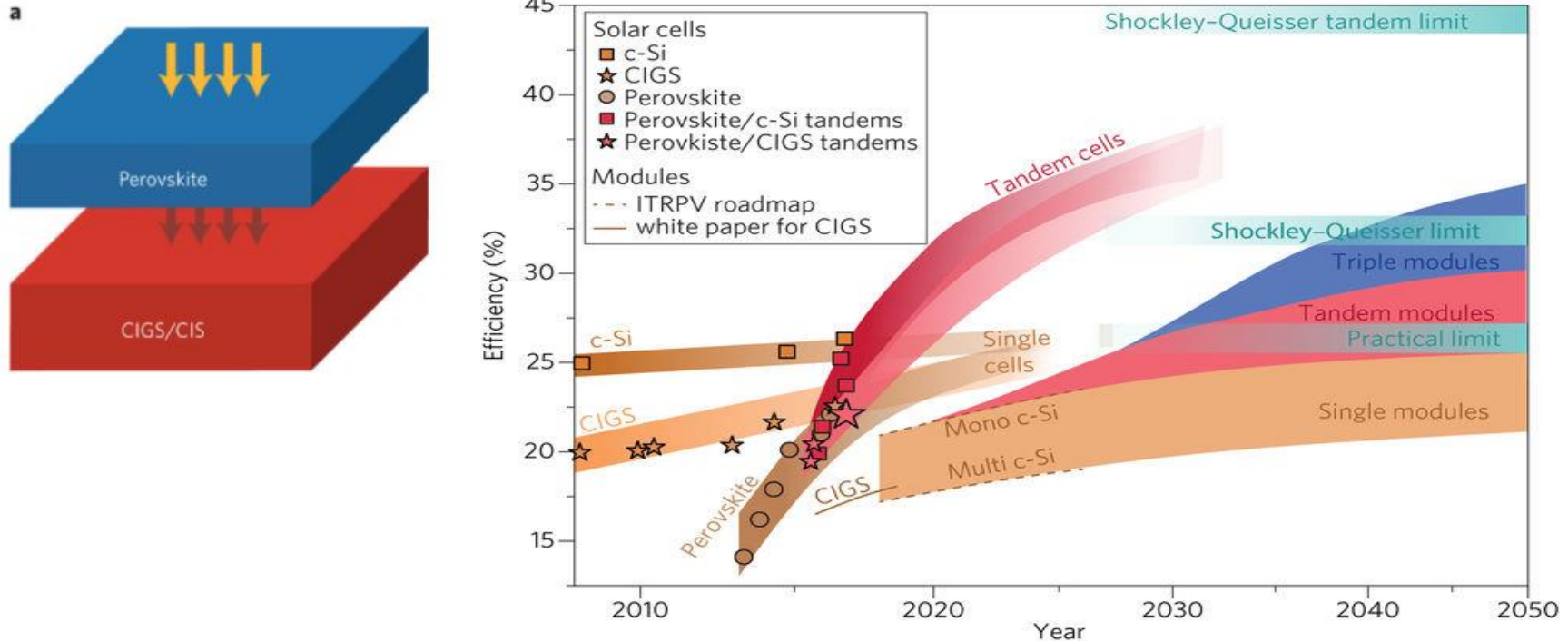
“While all low-carbon energy technologies contribute to climate change mitigation, their disruptive potential varies significantly from technology to technology.

- While technologies such as carbon capture and storage reinforce the role of incumbent players
- Other technologies such as photovoltaics (PV) can disrupt existing energy markets, for example, through massive decentralization
- In some geographies, decentralization could make the grid — the backbone of the current power system — obsolete
- Create “Prosumers” with changed energy-related behaviour”



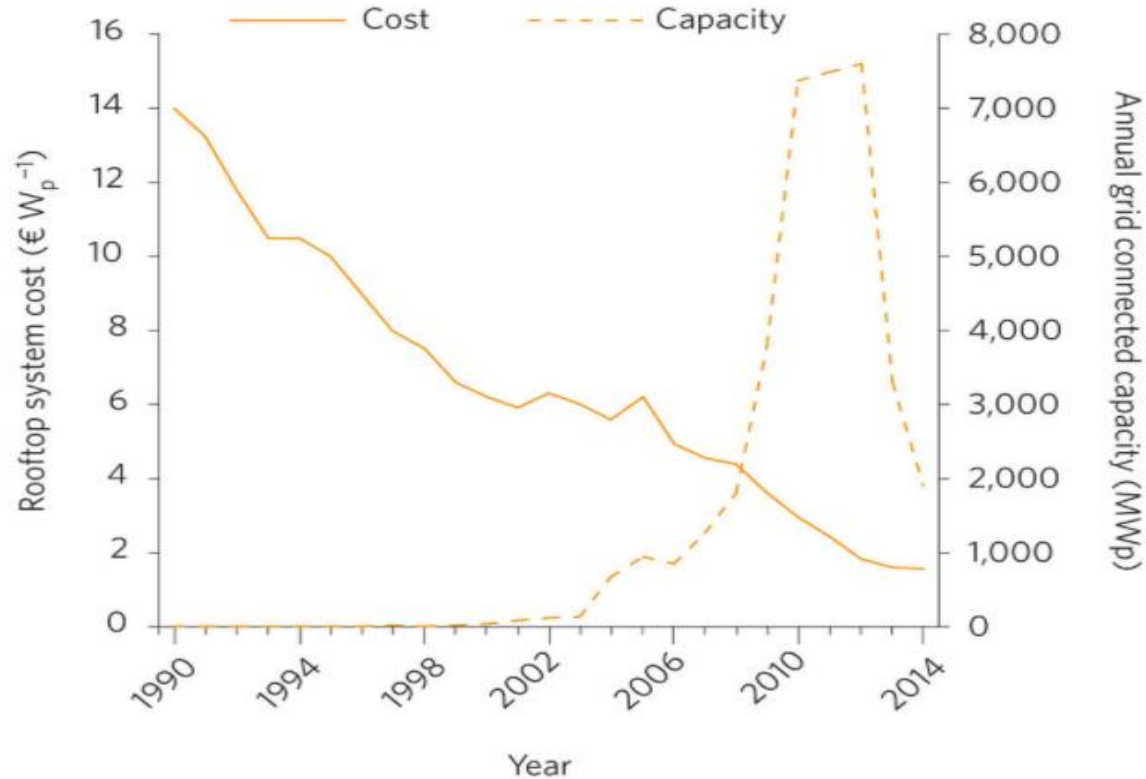
# Semi-transparent Perovskite Solar Cells

*Low cost tandem cells could be within reach*



Perovskite solar cells: On top of commercial photovoltaics  
Steve Albrecht & Bernd Rech – Nature Energy 2017

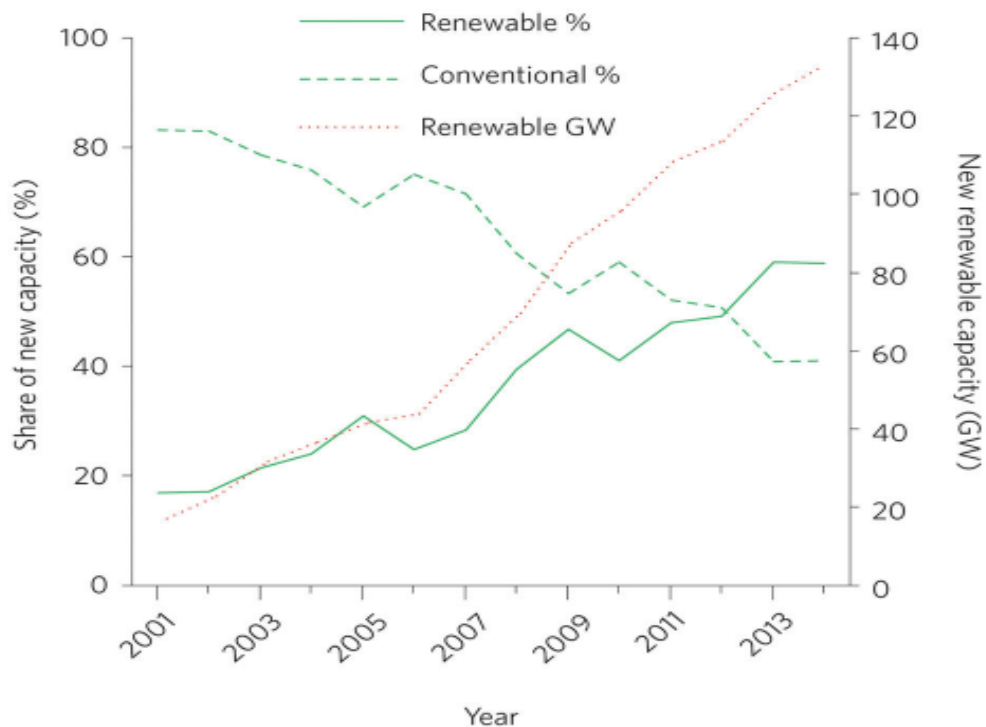
From: Momentum is increasing towards a flexible electricity system based on renewables



The rapid fall in price (solid line) and take-up (dashed line) of domestic rooftop PV systems in Germany. W<sub>p</sub>, peak power output in watts. Data taken from ref. 11.

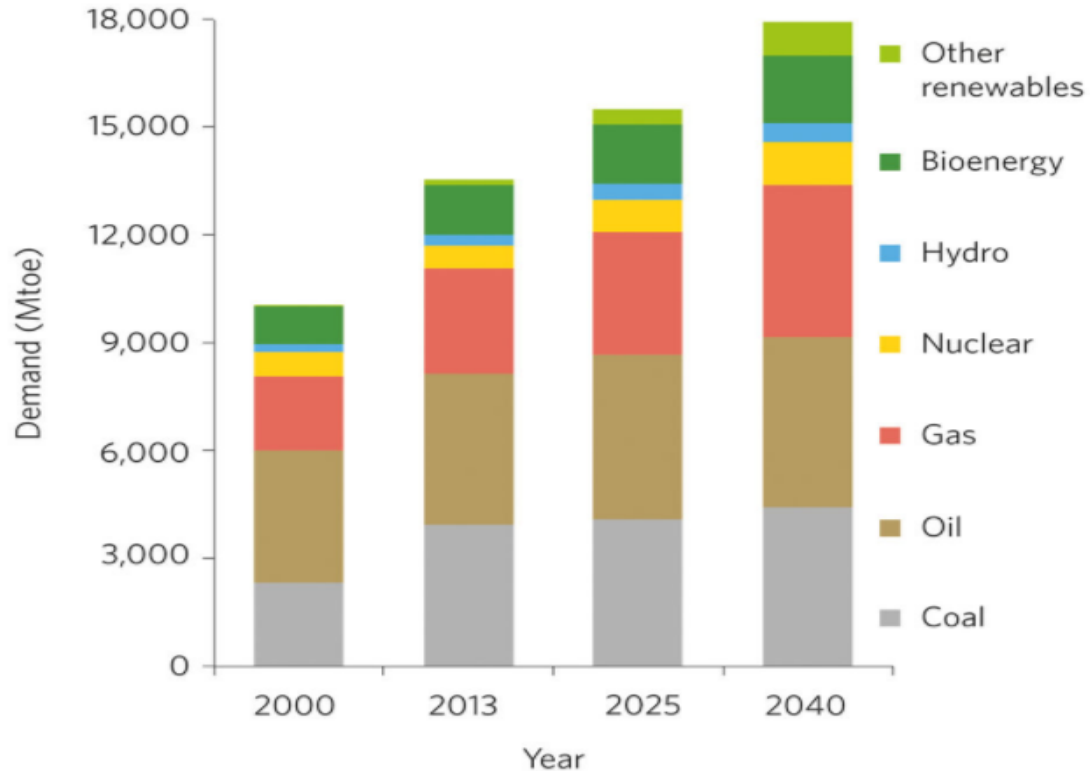
Figure 3: Additional capacity trajectories of renewables versus other power sources over 2001–2013.

From: Momentum is increasing towards a flexible electricity system based on renewables



In 2012 renewable electricity capacity overtook conventional capacity (nuclear, gas and coal) in terms of worldwide capacity additions. Percentage share of new capacity data taken from refs 2,82. New renewable capacity data taken from ref. 83.

## Is this Outlook Still Realistic or is Disruption Already Here?

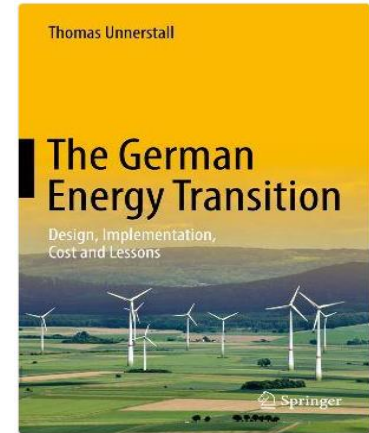


Catherine Mitchell - *Nature Energy* 1, Article number: 15030 (2016) data from *World Energy Outlook* (International Energy Agency, 2015).



# Momentum is increasing towards a flexible electricity system based on Renewables – Embracing the Change

- Total **global energy use is rising**, and remains based on fossil fuels.
- Yet, the challenge of **climate change requires a deep decarbonization** of our energy system
- Global energy **policy discourse is moving rapidly** towards one of **renewable, energy-efficient and flexible electricity systems**.
- Primarily because of
  - A rapid take-up within a few countries of variable renewable electricity sources over the past decade,
  - Resulting from **falling renewable electricity prices**,
  - New and more economic means of flexible system operation
  - Changing social preferences.
- A **'no-regrets' energy policy is one that increases the energy system flexibility**
- Germany's „Energiewende“ is a step in this direction





## Summary of Future Energy Trends - discussed in Nature Energy

- **Technological Innovation**
  - Energy Generation
  - Transmission
  - Storage
- **Not only keeping pace with political ambitions but starting to move ahead**
- **Cost of a low carbon and Diverse Energy Mixes falling**
- **Requires Political /Social policies ready to Embrace the Change**

**Thank You!!!**

**Chris.Bendall@SpringerNature.com**