



# The Centre for Resource Efficiency at the German Association of Engineers (VDI ZRE)



## Political framework

### German Resource Efficiency Programme (29.02.2012)

#### ■ Goals

- Decoupling of economic growth from resource use
- Reducing the burden on the environment
- Strengthening the competitiveness of the German economy

#### ■ Measures

- Market incentives, information, expert advice, education, research, innovation
- Strengthening **voluntary measures** by industry and society

#### ■ Analysis of the entire value chain:

- Securing a sustainable raw material supply
- Raising resource efficiency in production
- Steering consumption towards resource efficiency
- Enhancing resource-efficient closed cycle management



#### Deutsches Ressourceneffizienz- programm (ProgRes)

Programm zur nachhaltigen Nutzung und zum Schutz  
der natürlichen Ressourcen



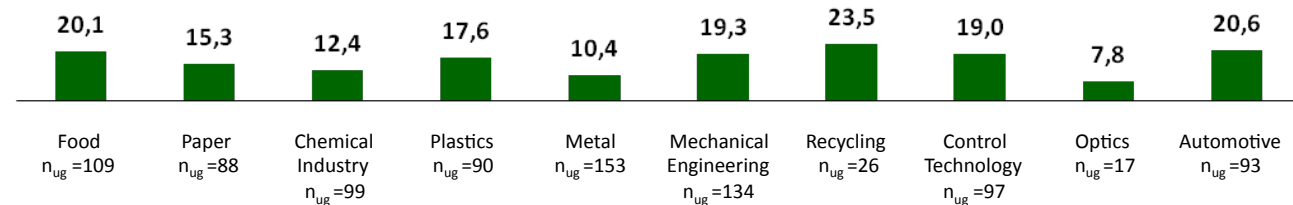
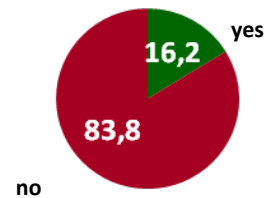


## Resource efficiency potential

$n_{ug} = 906$ , answers in percent

**In our sector all resource efficiency potentials have already been utilised.**

*Do you agree with this statement?*



Source: Study „Implementation of Resource Efficiency Measures in SME's and their Drivers“ (VDI ZRE, 2011)



## The Association of German Engineers (VDI)

Over **150.000** members

**VDI**

**12.000** active experts



12 VDI- Societies  
55 Technical  
Divisions

Education



ca. 200 new and revised VDI  
guidelines  
per year



### VDI-Group

Innovation funding

Technology consulting

Media

Advanced Training





## VDI Centre for Resource Efficiency (VDI ZRE)

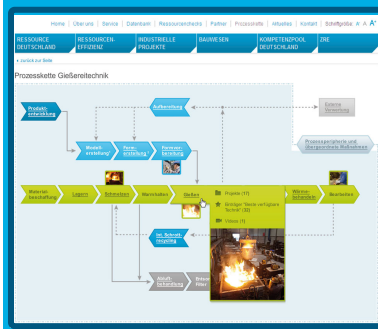
- Project cooperation of VDI and BMU, financed by the National Climate Fund.
- Focus on resource efficiency in companies.
- Competence Centre to utilise existing technical RE know-how for SME.
- Development of Standard through VDI guidelines for RE in cooperation with VDI.





## VDI ZRE Support Tools

## Process chains

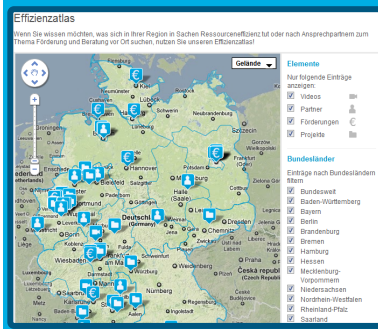


## Resource Checks

## Innovation Radar

## Database

## Efficiency Map



## Movies

## Qualification

VDI-Handbook  
Resource Efficiency



# Efficiency Checks for Enterprises

Frage 2: Wird bei Ihnen der geplante Verlust in der Produktion systematisch reduziert?



1. ja
2. teilweise
3. nein

Geringes Potential beim geplanten Verlust: Vielleicht finden Sie eine Anregungen aus der Checkliste?

- [Checkliste geplanter Verlust](#)
- [Werkzeuge und Methoden](#)
- [Beispiele zum geplanten Verlust](#)

Frage 3: Gibt es bei Ihnen Nacharbeit?



1. nein
2. gelegentlich
3. meistens
4. immer

Hohes Potential durch Nacharbeit! Holen Sie sich Anregungen aus der Checkliste!

- [Checkliste Nacharbeit](#)

1. Sind bei Auftragsstart alle kundenrelevanten Daten und Vorgaben vorhanden?
2. Sind Fertigungspapiere (z.B. Zeichnungen, Stücklisten, Rezepturen, Prüfvorgaben) bei Auftragsstart für die Produktion vorhanden?
3. Haben die Mitarbeiter alle relevanten Daten und Prüfhilfsmittel zur selbstständigen Prüfung der jeweils produzierten Qualität?

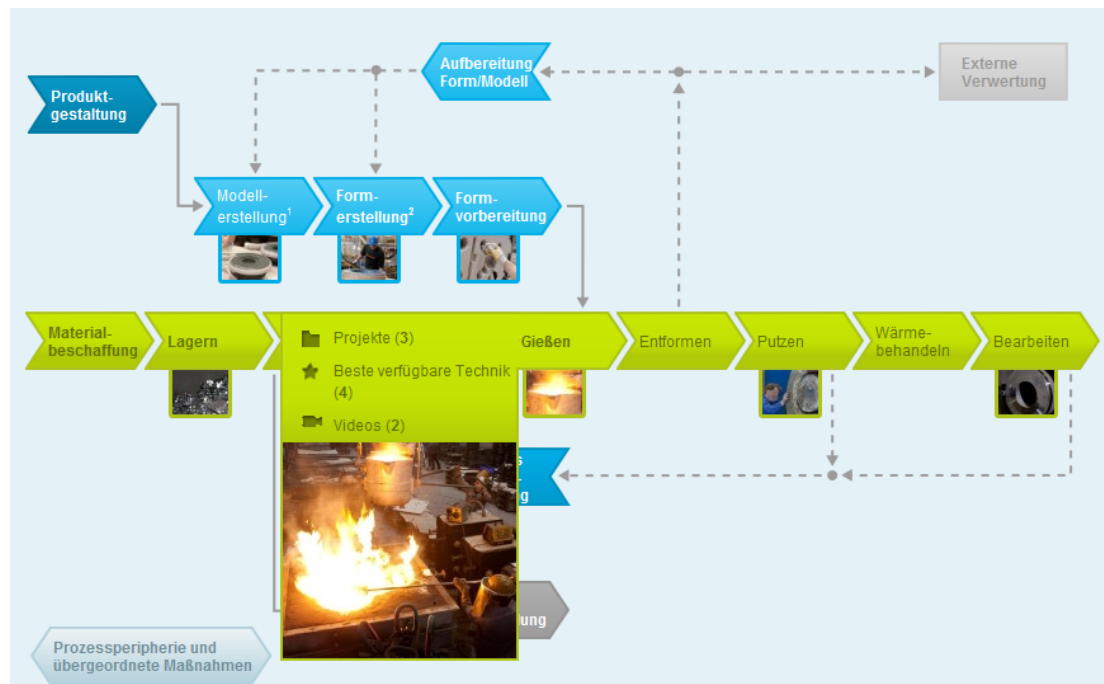
## Manufacturing

Basis module	Metal processing	Polymer processing
Varnishing	Shape cutting	Electrocoating
Foundry technology	Cold rolling	Hot rolling

## Construction

Facility Management (Hospital)	Energy-efficient Renovation (Hospital)	Lifts
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## Process Chains



### Example: Process Chain Foundry Technology

Showing RE potentials along a process chain. Available RE knowledge is linked to dedicated sub processes.



## Efficiency Map

RE map with information about:

- Experts specialized in RE consultancy
- Best practice examples
- Movies about exemplary solutions for SMEs
- Funding for RE investment







## Training course on resource efficiency

### Theoretical basis (3 days)

- Methods and instruments to increase resource efficiency in the production process
- Innovation coaching

### Practical part (2 days)

- Practical applications and review of theory part
- Plant tour
- Advice for the practical implementation
- Guided expert interview







## Publications - examples

- „CFK in the automotive industry – Resource efficiency and technologies“
- Study „Analysis of RE potentials in the metal processing industry“
- Technology monitoring 3, Focus: Industry 4.0, Functional surfaces, raw material recycling
- ...





## Web Video Magazine

- Movies are produced and released at regular intervals
- Best practice examples are filmed at SMEs
- RE processes are explained by 3D animation

Web-based video-magazine:  
[www.ressource-deutschland.tv](http://www.ressource-deutschland.tv)





## Example "Blechwarenfabrik Limburg"

### Production of tin cans

Newly self-developed film laminating plant:  
→ Share of cans does not need to be varnished.

- 110 tons less varnish p.a.
- 200.000 m<sup>3</sup> less natural gas p.a.
- 150.000 kWh less energy p.a.
- 500 tons less CO<sub>2</sub> p.a.





# Thanks for your attention!

## VDI Zentrum Ressourceneffizienz GmbH

Sebastian Schmidt, Scientific Officer

Johannisstr. 5-6

10117 Berlin

Telephone: +49 30 27 59 506-0

Fax: +49 30 27 59 506-30

Email: [info@vdi-zre.de](mailto:info@vdi-zre.de)

