Demand-side energy efficiency - good subsidies fill the state treasury

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Agenda

- Energy efficiency framework in Germany
- Study on demand-side energy efficiency
- Selected examples
  - Energy-efficient construction
  - Cross-cutting technologies
  - Networking platforms
- Conclusion

Our services

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German government's Energy Concept

Package of directives and targets for climate protection & energy (20-20-20 targets)

Policy framework for climate and energy 2030

Energy Efficiency Directive

Buildings Directive

German government's Energy Concept

Renewable energy

Energy efficiency

Renewable Energy Sources Act

National Climate Initiative

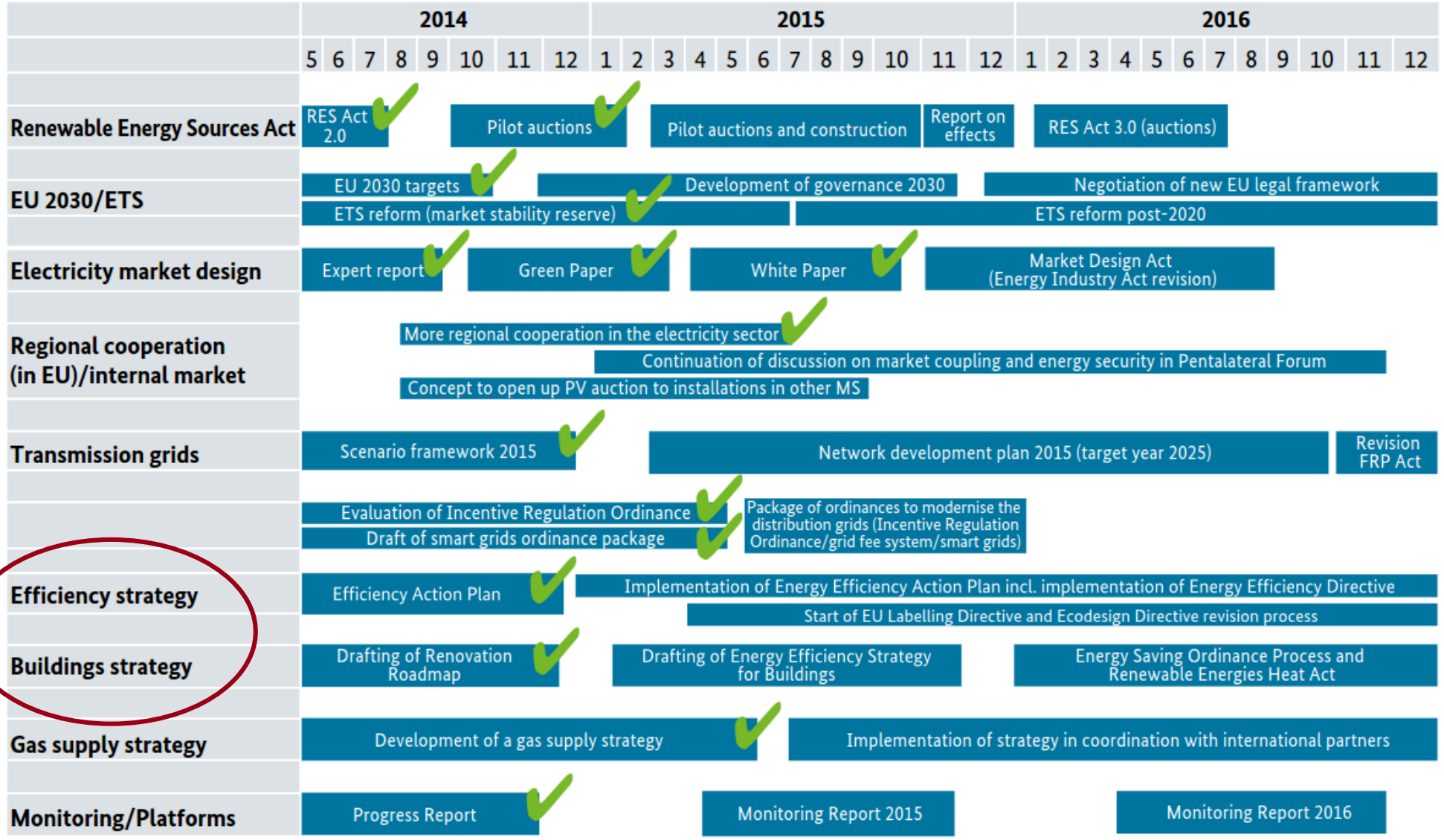
Market Incentive Programme

Energy Saving Ordinance

- Steady growth
- Cost-efficient
- Environmentally friendly

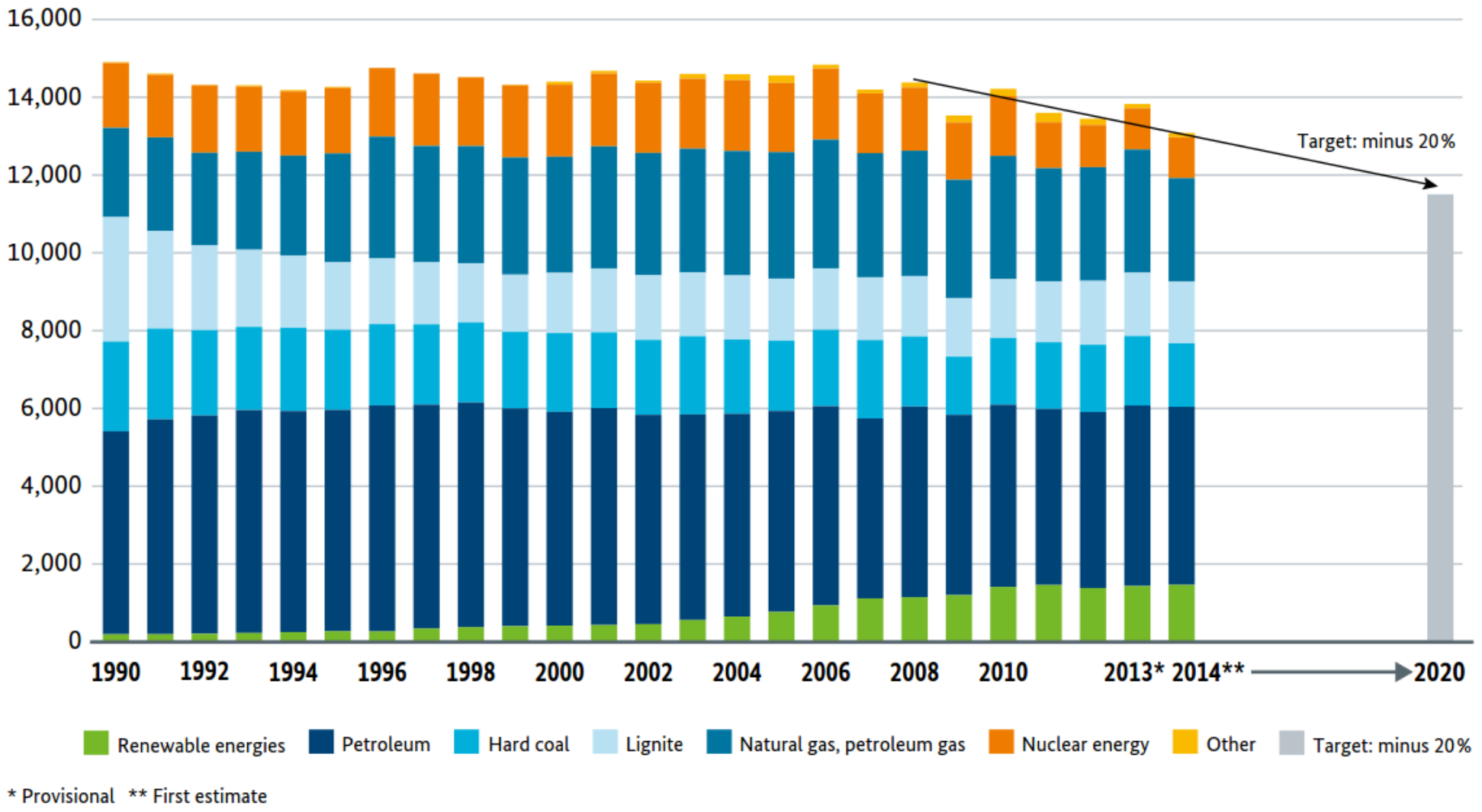
- Reduce energy consumption
- Improve efficiency

Energy Transition – key projects



Source: BMWi, 2015

Primary energy consumption 1990-2020 (PJ)



* Provisional ** First estimate

Approach of the study

Aim

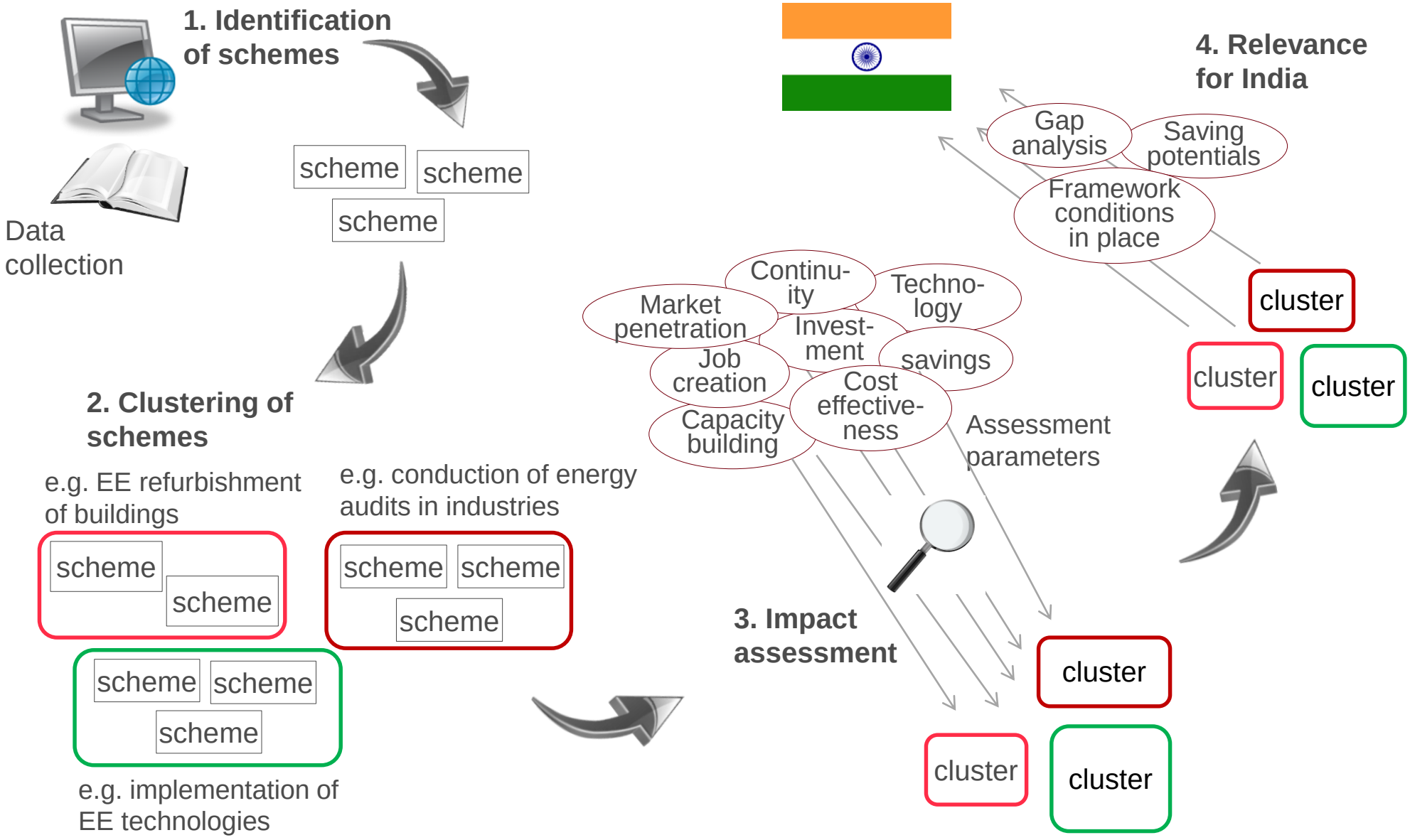
- Present the landscape of promotional programmes for EE in Germany
- Identify impact and performance of these programmes and relevance for India

→ determine potential areas for closer cooperation between India and Germany in the future

Scope

- all existing programmes in Germany providing financial incentives for saving and reducing energy consumption in the building and industry sector
- meta-study relying on existing data
- applying a standardised approach to compare impact of different schemes

Approach of the study



Main results

Stimulation of investment

- Most of the schemes stimulate high investments of more than € 10 investment / 1 € subsidy.
- Particularly high ratio of € 38.6 investment / € fund for the programme “Conduction of energy audits in industry”.
- Many programmes make more money through tax returns than funding amount

Job creation

- Most programmes are labour intensive and promote creation of additional jobs, particularly for specialised labour such as auditors, energy managers, engineers

High relevance for India

Cluster	Direct vs. indirect savings	Cost effective-ness	Investment stimulation	Job creation	Technology depen-dency	Continuity of savings	Capacity Building	Market penetration
Construction of EE buildings	++	++	+++	++	++	+++	+++	+++
Energy Audits in Industry	+	+++	+++	+++	+++	+++	+	+
Networking platforms for companies exchanging ideas on EE	+	+++	+++	++	+++	++	+	+
EE technologies / measures	++	+++	++	++	++	++	none	+

Example: KfW Energy Efficient Construction

Promotional mechanisms in this cluster *Financial promotion of construction of EE buildings*	
Number of programmes in Germany *11 similar programmes available in Germany*	**Targeted sector** *residential*
Representative scheme *KfW energy-efficient Construction*	
Level of implementation *National*	**Funding body** *KfW Investment Bank*
Description of scheme *The programme provides low interest, long-term loans and grants for the constructing of residential buildings. Pre-condition is that the building qualifies as a certified KfW Energy Efficient Building and is used for residential purpose. KfW EE Building standards are based on and significantly go beyond the National Building Codes.*	

Example: KfW Energy Efficient Construction

Direct/indirect savings	• direct: technologies and measures directly financed and implemented (++)
Energy saving effectiveness	• combined numbers for construction and refurbishment - In 2012: € 1,420 million public funds resulted in 2,623 GWh primary energy saved => **1.85 kWh/€** (++)
Stimulation on investment	• € 26,960 million investments triggered (for EE construction and refurbishment) => **€19 investment / € fund** (+++)
Job creation	• few new jobs created (construction workers/architects required anyways for building) and usage of new technologies (++)

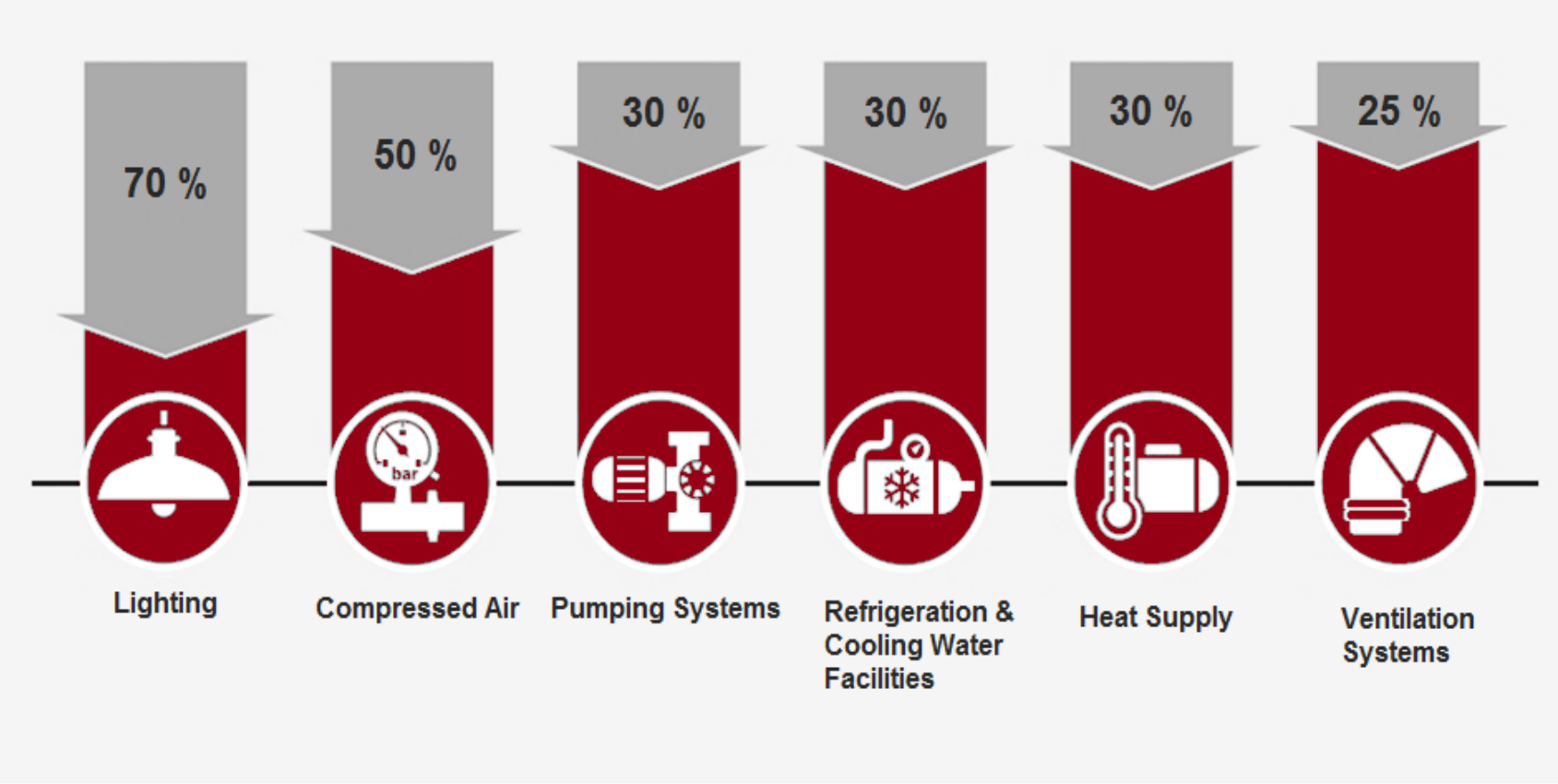
Example: KfW Energy Efficient Construction

Relevance for India

- 70-80% of construction yet to be built until 2030
- no dedicated scheme providing financial support in the form of loans or grants to building/apartment owners for the construction of energy efficient buildings
- Existing programmes: PCMC property tax incentive for green buildings; NHB Energy Efficient Homes Programme
- Required framework conditions for extension of such programmes exist

Example: Cross-cutting technologies

Investment grant programme for the application of highly efficient cross-cutting technologies in SMEs



Source: dena, Initiative Energieeffizienz, 2015

Example: Cross-cutting technologies

Investment grant programme for the application of highly efficient cross-cutting technologies in SMEs

- 28 programmes in Germany
  - High cost-effectiveness: 20.42 kWh saved per € fund
  - Leverage rate 4 € / € fund
- Several similar programmes existing in India indicating high relevance
- Generally the focus on SMEs, municipalities and individual households
- programmes are implemented at national level though various state agencies or development banks
- Advisable to examine the potential for additional cross-cutting programmes in order to fully tap into to energy efficiency potentials in energy intensives sectors

Example: Networking platforms for companies

Promotional mechanisms in this cluster *Financial promotion of networking platforms for companies exchanging ideas on EE*	
Number of programmes in Germany *2 similar programmes available in Germany*	**Targeted sector** *Energy-intensive companies*
Representative scheme *30 Pilot Networks Programmes*	
Level of implementation *National*	**Funding body** BMU
Description of scheme *EE networks are a platform for exchange of information and capacity building. It promotes the creation of EE networks, which are guided by experienced energy experts. Each network consists of ten to twelve highly energy-intensive companies, that develop ways to reduce transaction costs, overcome barriers and identify innovations leading to more EE. The participants were preselected and the duration is limited to five years.*	

Example: Networking platforms for companies

Direct/indirect savings	• indirect savings as result of exchange and capacity building (+)
Energy saving effectiveness	• Based on representative network: 29,000 MWh / a for ten companies → 878 kWh/€ fund (+++)
Stimulation on investment	•Ratio of 34.15 € / € fund (+++)
Job creation	• Moderate for EE experts, new jobs through implementation of measures, overall good (++)

Example: Networking platforms for companies

- No programme in India
- High relevance
  - High number of energy-intensive companies across different sectors
  - Existing experience to be shared
  - Limited stimuli to create knowledge exchange
- Expected impact is high

Conclusion

- Indicative study based on existing monitoring
- Most of the schemes stimulate high investments of more than € 10 investment / 1 € subsidy and thus repay themselves through tax return
- Given public energy generation in India returns may be higher
- Programmes with high impact in Germany and relevant for India
  - **Financial promotion of networking platforms for companies exchanging ideas on energy efficiency**
  - **Financial promotion of constructing EE buildings**
  - Financial promotion of implementing EE technologies / measures
  - Financial promotion of conducting energy audits in industries
- German examples help identify success factors
- Incentives need to be identified and monitoring systems need to be established

THANK YOU

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Back-up

Example: Energy audits in the industry

Promotional mechanisms in this cluster *Financial promotion of conduction of energy audits (industries)*	
Number of programmes in Germany *5 similar programmes available in Germany*	**Targeted sector** *Available for industries of all types and sizes*
Represenatitive scheme *KfW energy audits in SMEs (Energieberatungen im Mittelstand)*	
Level of implementation *National*	**Funding body** *KfW Investment Bank*
Description of scheme *The programme provides financial support for energy audits in SMEs (including freelancers) whose costs for energy amount to at least 5,000 Euro per year. Audits comprise an initial audit, in which the status quo is described, deficiencies are identified and measures for energy efficiency are proposed. In the following detailed audit, this analysis is expanded and specified. The grants can amount to 80%/60% of the costs and a maximum of 1,280 Euros/4,800 Euros for the initial/detailed audits.*	

Example Energy audits in the Industry

Direct/indirect savings	• indirect savings: because no measure implemented through audit only (+)
Energy saving effectiveness	• In 2009: € 8.2 million public funds resulted in 870 GWh primary energy saved => 106,09 kWh energy savings per 1€ fund (+++)
Stimulation on investment	• ratio of € 38.6 overall investment per 1€ fund (+++)
Job creation	• labour intensive: new jobs for auditors created (+++)