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Supporting low-carbon transition of the Czech Republic by EU ETS Funding Mechanisms

Webinar on Impact assessment of the Modernisation Fund in the Czech Republic - results from the European Commission funded project

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European Commission

Ministry of the Environment of the Czech Republic

Document control

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Content

1. Welcome and introduction (ICF)
2. Welcome and update on the latest policy development (Ministry of Environment)
3. Key results of the impact assessment
4. Questions and answers
5. Presentation on main aspects of guidance on State Aid
6. Questions and answers
7. Closing remarks (Ministry of Environment)

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I would also like to inform you that we are recording the webinar. The recording, including a summary and slides will be published on the website afterwards.

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Welcome and introduction

Jonathan Lonsdale
Consulting Director, ICF

Objectives of the webinar

- **The ICF team will present today:**
  - Brief recap on the project and final steps
  - Financial, environmental, social and economic impacts of the Modernisation Fund.
  - Summary of key points from our Guidance on State aid for applicants
  - Answers to your questions!

Please note that this webinar will not provide more details or answer questions on the detailed deployment modalities for the Modernisation Fund. There will be a dedicated MoE event for this next week.

Recap on the project

- **This project has supported the Czech authorities to develop an implementation framework for the Modernisation Fund (MF).**

- **Process to date has incorporated stakeholder perspectives throughout:**
  - Cross-sectoral gap assessment of energy system needs to identify where MF could be best used
  - Stakeholder interviews / survey to gain insights into initial MF deployment options and project pipeline
  - Design of an overall structure for the MF and suggested modalities based on a “user” perspective
  - Suggested modalities which Czech authorities have further developed
  - Assessing of financial leverage, environmental and socio-economic impacts of suggested modalities
  - Engagement with key stakeholders during the project to ensure consistency and transparency

Welcome and update on the latest policy development

Jan Kříž

Deputy Minister for EU Funds, Financial and Voluntary Instruments, Ministry of Environment

Working arrangement of CZ MF Programmes

1. Heat Sector – fuel change, reconstruction of networks
2. Renewables + accumulation
3. Emission reduction and energy efficiency in EU ETS installations
4. Energy efficiency in industry
5. Clean mobility – private sector
6. Clean mobility – public transport, public beneficiaries
7. Energy efficiency in public buildings
8. Community energy projects
9. Public lighting

Key results of the impact assessment

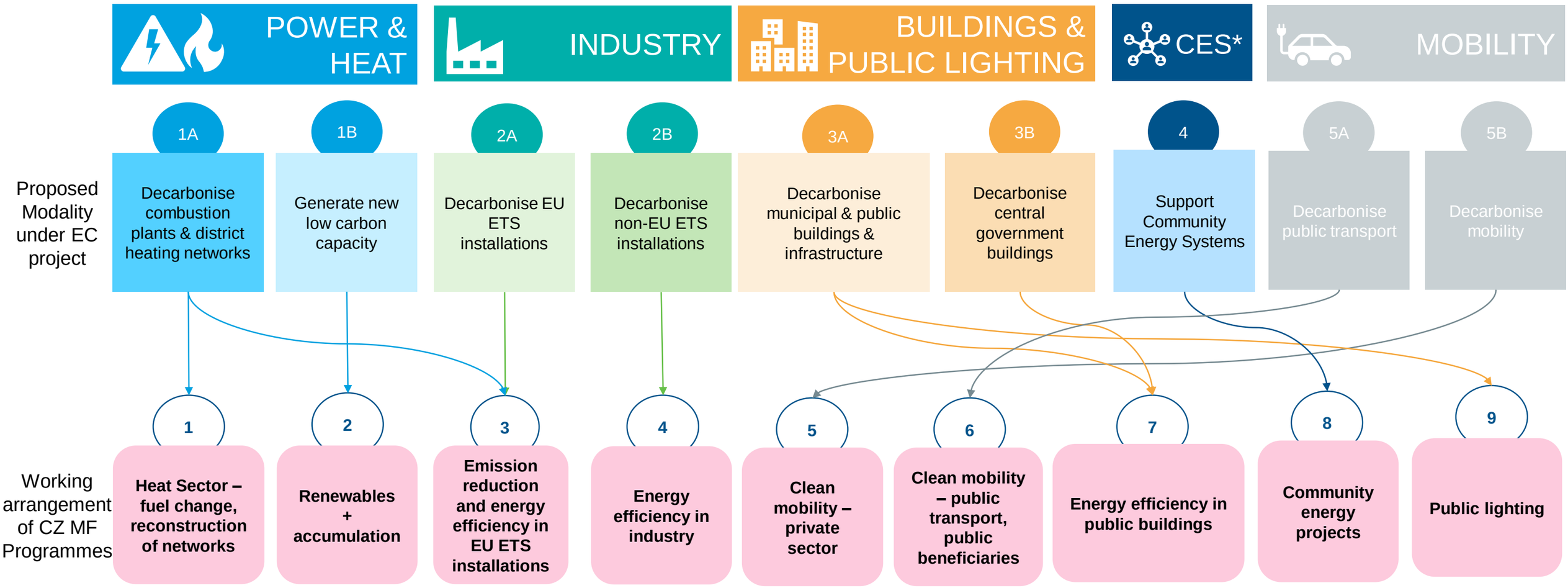
Jonathan Lonsdale, Mattias Wihlborg and Pravnick Heer - ICF

Modalities used in the impact assessment

	POWER & HEAT		INDUSTRY		BUILDINGS & PUBLIC LIGHTING		CES*	MOBILITY	
	1A	1B	2A	2B	3A	3B	4	5A	5B
Modality	**Decarbonise combustion plants & district heating networks**	**Generate new low carbon capacity**	**Decarbonise EU ETS installations**	**Decarbonise non-EU ETS installations**	**Decarbonise municipal & public buildings & infrastructure**	**Decarbonise central government buildings**	**Support Community Energy Systems**	**Decarbonise public transport**	**Decarbonise mobility**
Key activities	Fuel switching for power, heat & CHP (including industry)	New RES including with storage	EE & GHG abatement		EE & GHG abatement		RES	Transport electrification & modernisation	
Geographic coverage	Czechia		Czechia	Prague to complement OP	Prague (complementing OP) and Czechia (public lighting calls)	Czechia	Czechia	Czechia – After depletion of Operational Programmes	
Support instrument	Grant	Competitive bidding	Grant	Grant	Grant	Grant	Grant	tbc	

* Community Energy System

Modalities used in the impact assessment



3 parts to the impact assessment

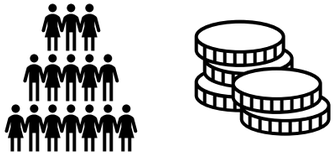
1. Financial leverage

- Assessing the nature of the funding mechanism
- Determining the extent to which the MF can mobilise capital

2. Environmental impacts

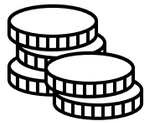
- Investigating the technical potential within each Modality
- Applying the levels of investment mobilised to understand the cost effectiveness of a suite of measures and resulting CO_2 emissions and energy savings

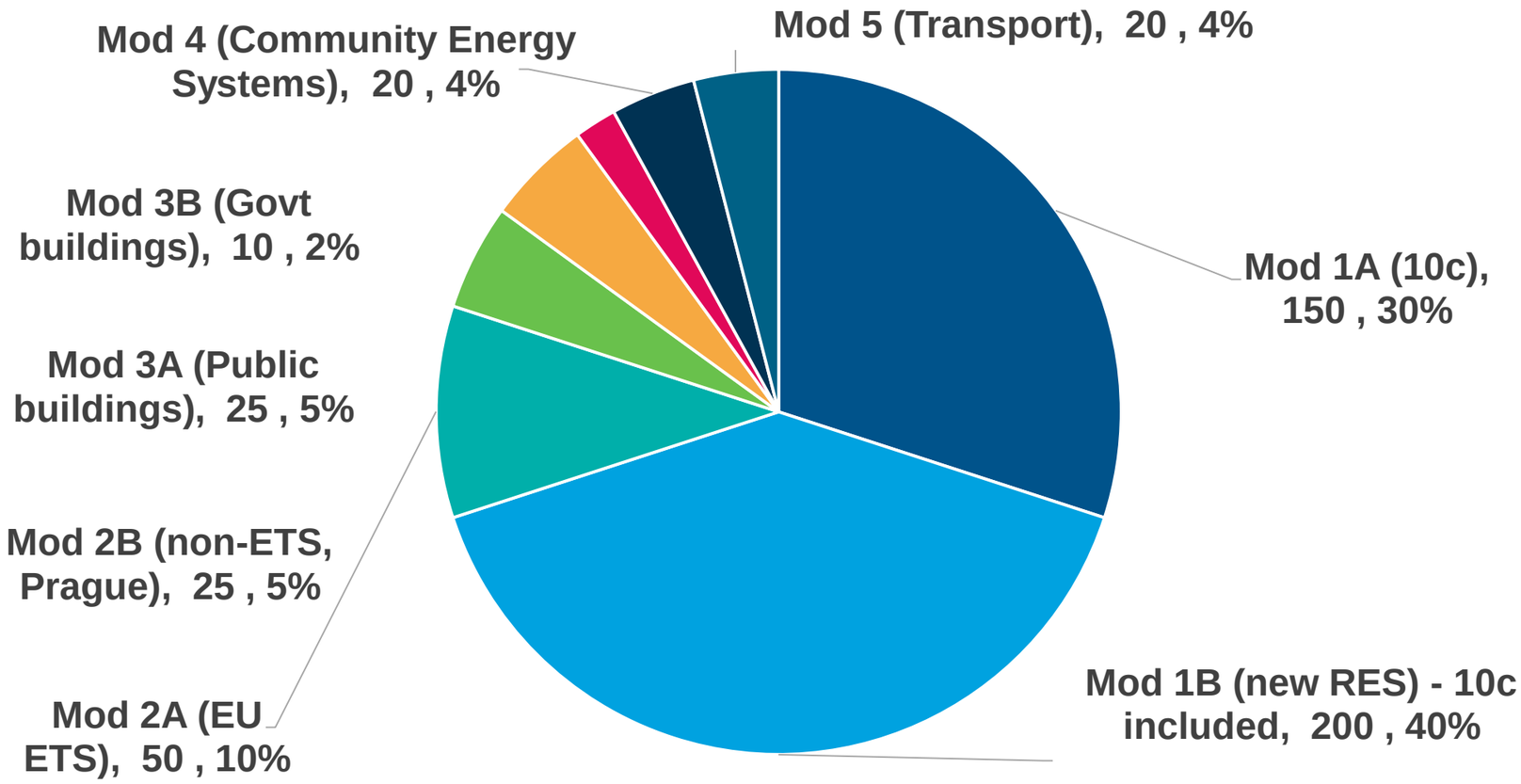
3. Socio-Economic impacts



- Assessing levels of investment mobilised and resulting energy savings to generate employment and value added impacts

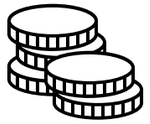
Hypothetical annual volume of MF support applied to each modality (Total = €500m)





1. €5 billion: total MF allocation for 2021-2030, straight-line expenditure
2. 70% of MF ringfenced for installations covered by 10c
3. Largest total allocation: new RES €2 billion

Range of realistic intervention rates applied for capital grant-based support

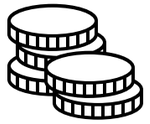


	Share	MF support	Intervention rate (%)		
Modality	**%**	**(M Euro)**	**Low**	**Med**	**High**
Mod 1A (10c)	30	1,500	30	40	50
Mod 1B (new RES)	40	2,000	30	40	50
Mod 2A (EU ETS)	10	500	30	40	50
Mod 2B (non-ETS, Prague)	5	250	30	40	50
Mod 3A (Public buildings)	5	250	40	50	60
Mod 3B (Govt buildings)	2	100	50	70	90
Mod 4 (CES)	4	200	40	50	60
Mod 5 (Transport)	4	200	30	40	50
Total	**100**	**5,000**			

CES = Community Energy Systems

1. Intervention rates in line with existing support schemes
2. Typically 30%, 40%, 50% of eligible costs for most modalities
3. Key factor: whether private or public sector beneficiaries due to State aid constraints

MF could leverage additional capital of €4.8-11.2 billion in Czech Republic to 2030



	Share	MF support	Intervention rate (%)			Financial leverage (mEuro)		
Modality	**%**	**(m Euro)**	**Low**	**Med**	**High**	**Low**	**Med**	**High**
Mod 1A (10c)	30	1,500	30	40	50	3,500	2,250	1,500
Mod 1B (new RES)	40	2,000	30	40	50	4,667	3,000	2,000
Mod 2A (EU ETS)	10	500	30	40	50	1,167	750	500
Mod 2B (non-ETS, Prague)	5	250	30	40	50	583	375	250
Mod 3A (Public buildings)	5	250	40	50	60	375	250	167
Mod 3B (Govt buildings)	2	100	50	70	90	100	43	11
Mod 4 (CES)	4	200	40	50	60	300	200	133
Mod 5 (Transport)	4	200	30	40	50	467	300	200
Total	**100**	**5,000**				**11,158**	**7,168**	**4,761**
MF Leverage Multiplier				**=**		**2.23**	**1.43**	**0.95**

CES = Community Energy Systems

MF deployment could mobilise total funding of €9.8-16.2 billion to 2030

	Share	MF support	Intervention rate (%)			Total funding mobilised (mEuro)		
Modality	**%**	**(m Euro)**	**Low**	**Med**	**High**	**Low**	**Med**	**High**
Mod 1A (10c)	30	1,500	30	40	50	5,000	3,750	3,000
Mod 1B (new RES)	40	2,000	30	40	50	6,667	5,000	4,000
Mod 2A (EU ETS)	10	500	30	40	50	1,667	1,250	1,000
Mod 2B (non-ETS, Prague)	5	250	30	40	50	833	625	500
Mod 3A (Public buildings)	5	250	40	50	60	625	500	417
Mod 3B (Govt buildings)	2	100	50	70	90	200	143	111
Mod 4 (CES)	4	200	40	50	60	500	400	333
Mod 5 (Transport)	4	200	30	40	50	667	500	400
Total	**100**	**5,000**				**16,158**	**12,168**	**9,761**

CES = Community Energy Systems

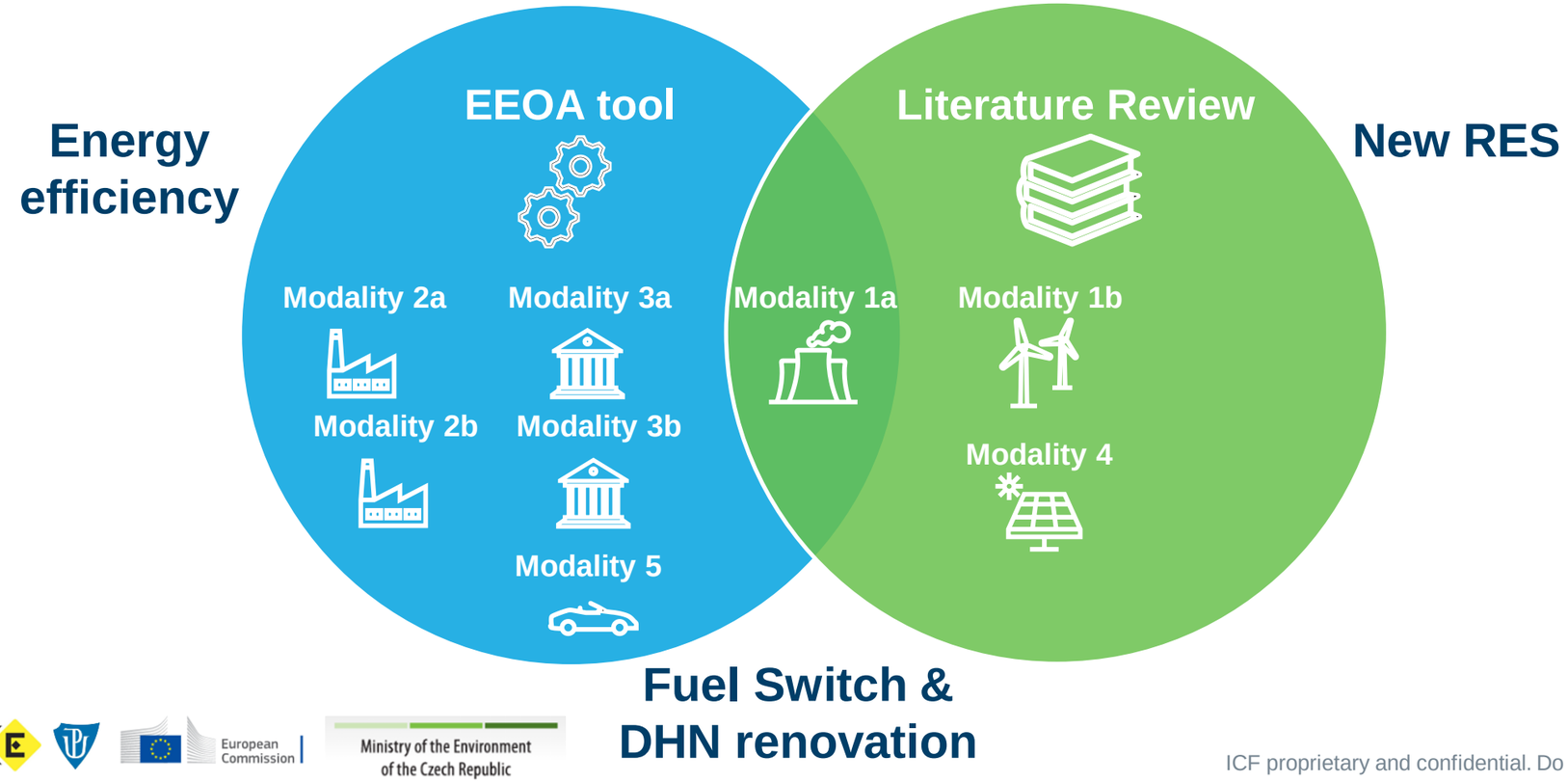
Financial leverage – conclusions

1. Based on allocations modelled per Modality, the MF in Czech Republic:
   - **could leverage €4.8-11.2bn of additional capital between 2021 and 2030**
   - **could mobilise total funding of €9.8-16.2 billion to 2030**.
2. To achieve maximum impact for MF requires **setting the intervention rate at a level that will incentivise investors to support projects whilst avoiding crowding them out**.
3. **Czech authorities yet to agree final choice of allocation levels and intervention rates** for Modalities.

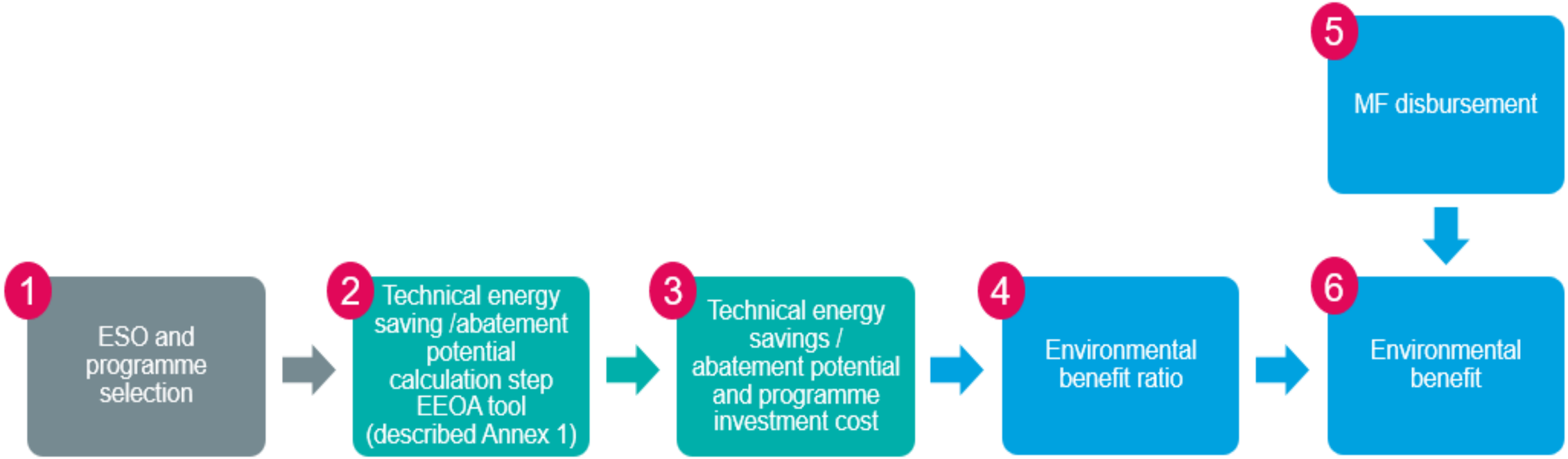
Environmental impact assessment

1. **Purpose:** estimate the environmental benefits of the Modernisation Fund to the Czech Republic in emissions reduction, energy saved and new RES deployed.

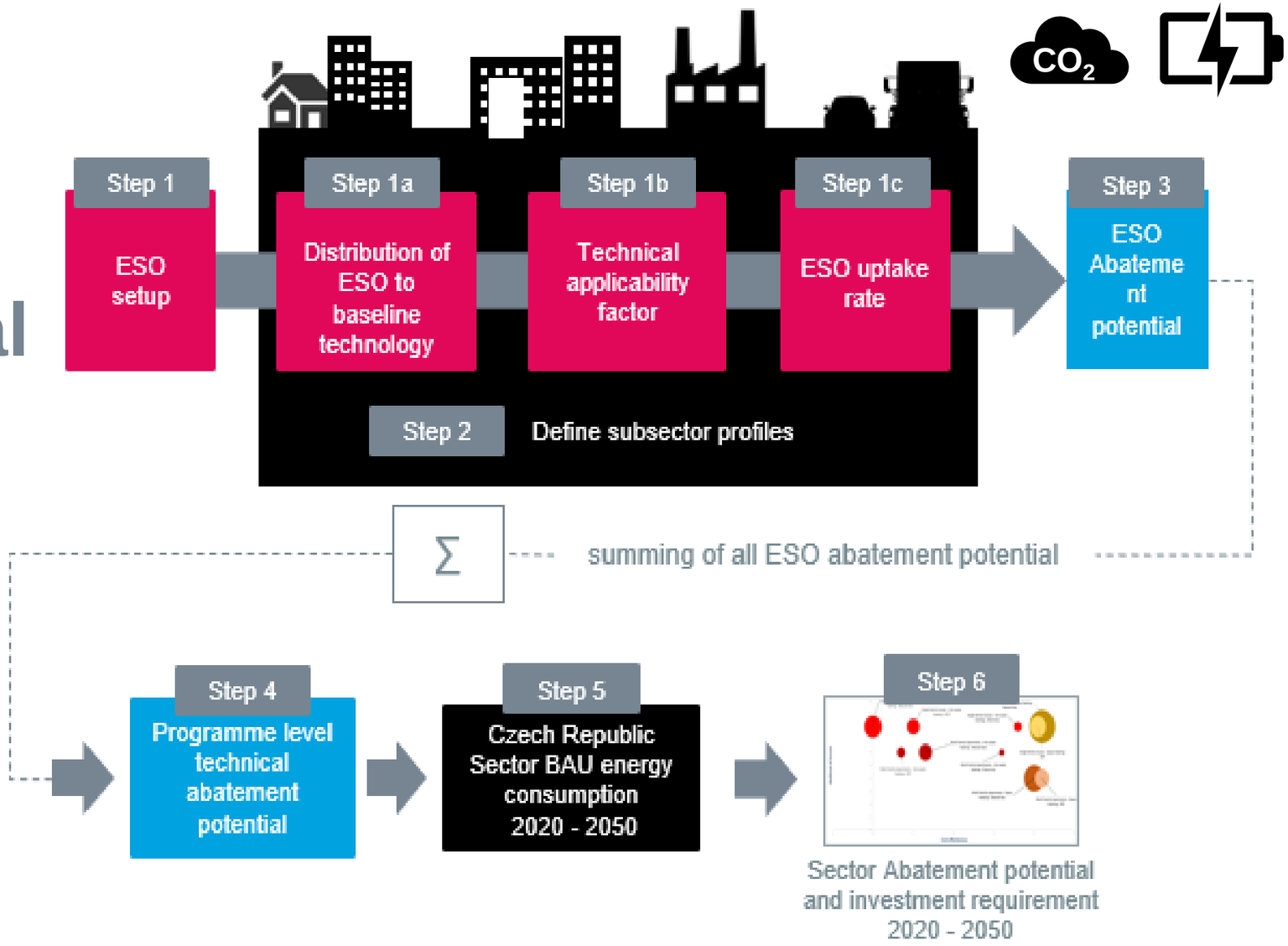
2. **Our approach**: involves use of ICF's proprietary Energy Efficiency Opportunity Assessment (EEOA) tool and a literature review to calculate the environmental benefits



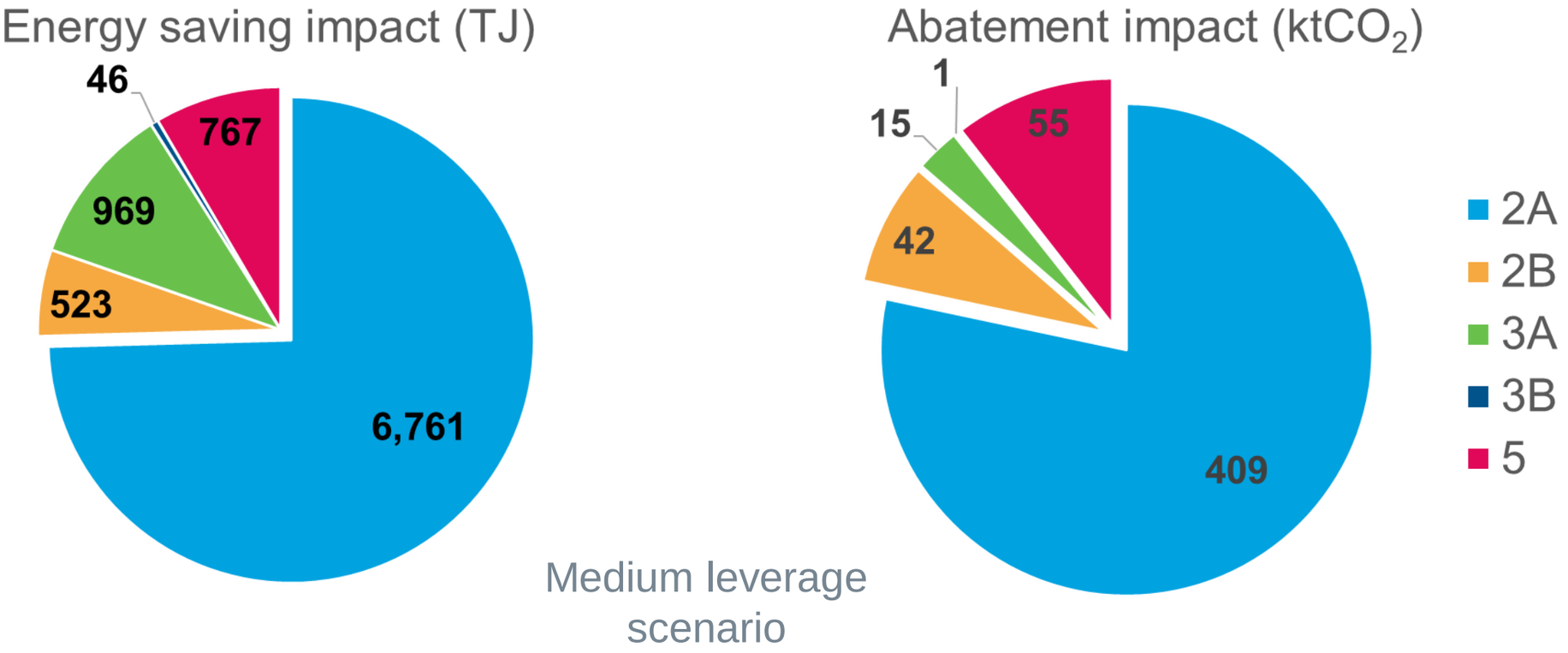
Robust bottom-up methodology using EEOA tool



Technical abatement potential and investment requirement – EEOA tool methodology



Energy efficiency impact assessment – Modality 2A dominates the results

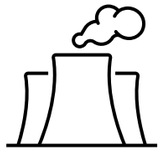


Medium leverage scenario

New RES and Modality 1A impact assessment

Modality 1A

- 71,330 TJ of low carbon heat/electricity
- 1,225 TJ energy efficiency savings
- 6,027 $ktCO_2$
- 1,651 MW switched

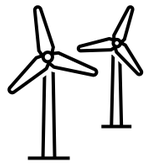


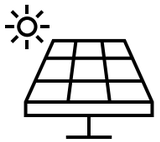
Modality 1B

- 99,846 TJ of RES
- 10,368 $ktCO_2$
- 3,058 MWe deployed

Modality 4

- 613 TJ of RES
- 602 $ktCO_2$
- 16 MWe deployed





Technical potential and MF impact comparison – Optimisation of MF impacts

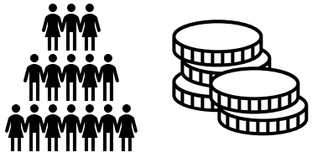
Modality	Technical energy saving / Deployment of RES potential (TJ)	Technical abatement potential ($ktCO_2$)	MF impact Energy saved/generated (TJ)	MF impact Abatement potential ($ktCO_2$)	Surplus/Deficit funding to achieve technical potential (mEUR)
1A	72,555	6,027	72,555	6,027	**2,724***
1B	152,027	15,787	99,846	10,368	**-2,613**
2A	63,547	3,842	6,761	409	**-10,499**
2B	523	42	523	42	**602**
3A	1,604	25	969	639	**-328**
3B	46	1	46	30	**118**
4	N/A	N/A	613	602	**N/A**
5	6,476	465	767	55	**-3,723**
TOTAL	**224,223**	**26,189**	**110,751**	**17,520**	

** Does not include technical energy efficiency potential for DHN renovation*

Environmental impacts - conclusions

- 17.5 $MtCO_2$ abatement potential: **would contribute 40% of 44 $MtCO_2$ target set in Czech NECP** by 2030
- 10.3 PJ energy efficiency savings: **would deliver 30% of Czech NECP target** of 29 PJ by 2030
- 3,074 MWe of new RES deployed by 2030: **would exceed Czechia's renewables target by 39%** (2,216 MWe over same period)
- **Potential for further environmental benefits** through achieving technical potentials in Modalities by re-distributing funding

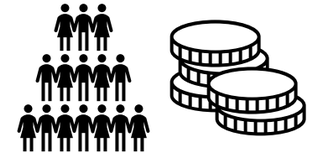
Socio-economic impact assessment



- **Purpose:** estimate the expected contribution of the Modernisation Fund to the Czech economy in terms of employment impacts and value added.

- **Our approach consisted of three steps:**
  - Establishing a baseline to contextualise the findings
  - Literature review
  - Economic modelling

The Czech environmental economy is already significant for jobs and GVA



Eurostat data suggests Czech environmental economy:

- Supports ~94,000 FTE jobs directly
- Represents total gross value added (GVA) of EUR 3.6 billion in 2017
- Equivalent to around 2% of Czech Republic GDP

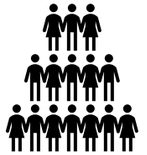
EurObserv'ER* data suggests Czech renewables sector:

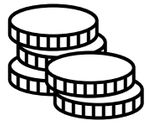
- Supports (directly & indirectly) over 39,000 FTE jobs
- Generates EUR 2.5 billion in turnover.

→ ***Our assessment sought to assess the additionality of MF spending***

** Source: Netherlands Organisation for Applied Scientific Research (TNO)*

3 main methods to assess macroeconomic effects of investments in RES & EE measures



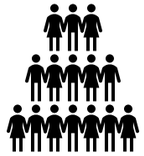


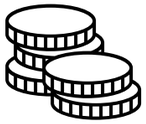
Ratio or employment factor approach	Input-output (IO) analysis	Complex models
Jobs/MW (installed capacity) Jobs/GWh (energy generated/saved) Jobs/mEUR invested	Based on input-output accounts or tables	Computable general equilibrium (CGE) models Macroeconomic models

- **Macroeconomic effects depend on:**
  - Methodology used
  - Geographical scope
  - Types of technology/measures covered

Broad conclusion from evidence: building new RES generation capacity and investing in greater EE creates more jobs than investing in an equivalent level of fossil fuel-fired generation, at least in the short-term.

We used 2 approaches to model the socio-economic impacts of the Modernisation Fund



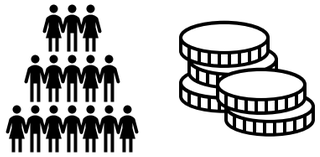


- **Input-output analysis** – uses the hypothetical Modernisation Fund allocations by modality (and the net financial leverage) as key inputs

- **Employment factor approach** – uses the estimated achievement of environmental targets (i.e. renewable energy generated and energy saved), together with employment factors from the literature, as key inputs

- *The two methods used are complementary*
- They model two different things
  - However, some double-counting (e.g. manufacturing and installation of RES)

How the MF investment flows through the economy in the input-output analysis

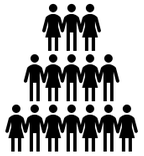


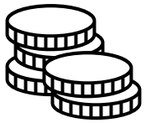
MF investment

Indirect effects	Direct effects	Induced effects
Procurement and supply chain linkages (backward linkages)	*Less leakage* **Increase in final demand/use for sector X, Y, Z,...,n** *Entered in IO model developed from the Czech symmetric input-output table*	**Income effects (demand from those whose jobs are directly or indirectly supported** (forward linkages)

Total net effects

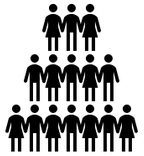
MF can be expected to support 78,000-112,000 jobs between 2021-2030

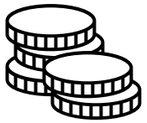




Modality	Modernisation Fund investment (mEUR)	Modernisation Fund net leverage (mEUR) - 30%	Employment (FTE person-years)	Value added (mEUR)	Employment (FTE person-years) w/ leverage	Value added (mEUR) w/ leverage
1A	1,500	675	19,957	1,040	28,938	1,508
1B	2,000	900	26,610	1,387	38,584	2,011
2A	500	226	11,530	379	16,719	549
2B	250	112	5,765	189	8,360	275
3A	250	75	5,385	185	7,000	241
3B	100	13	2,154	74	2,431	84
4	200	60	2,661	139	3,459	180
5	200	90	4,308	148	6,246	215
TOTAL	**5,000**	**2,150**	**78,370**	**3,542**	**111,737**	**5,063**

Complementary analysis through employment factor approach





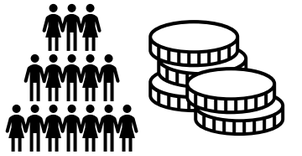
- **Popular approach** for estimating the macroeconomic effects of development of renewable energy sector or energy efficiency improvements

- Basic idea is to identify employment factors, i.e. **labour intensities of different technologies or economic activities**

- Usually derived from **industry studies** and **literature reviews**

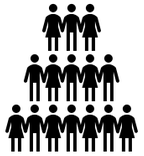
- Tend to cover **only direct employment effects,** taking **no account of indirect effect (backward linkages) or induced effects (forward linkages).**

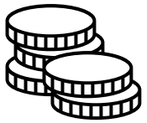
Additional 3,800-19,200 jobs can be created from energy generation / savings



Modality	Jobs per unit energy Saved / generated (GWh) (low)	Jobs per unit energy saved / generated (GWh) (high)	Additional jobs (low)	Additional jobs (high)
1A	0.07	0.27	24	92
1B	0.13	0.66	3,606	18,305
2A	0.07	0.27	131	507
2B	0.07	0.27	10	39
3A	0.36	0.62	97	167
3B	0.36	0.62	5	8
4	0.13	0.66	22	112
5	0.06	0.19	13	40
Total			**3,884**	**19,179**

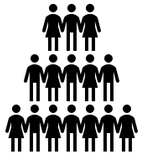
Socio-economic impact - conclusions

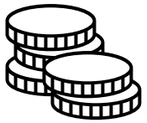




- Environmental economy of Czechia is already estimated to directly support nearly **94,000 jobs (FTE) or around 2% of GDP**.
- From 2021-2030 (and potentially beyond), MF is expected to **add further employment and economic activity to the environmental economy**, and to other sectors of Czech economy (through backward and forward linkages).
- Estimated that during the period 2021-2030 the MF will:
  - **Support (through direct, indirect & induced effects) 78,000-112,000 jobs** (FTE person-years of employment);
  - **Generate in excess of EUR 3.5-5 billion in terms of value added** (representing approximately 0.2-0.3% of the Czech economy annually).

Socio-economic impact - conclusions



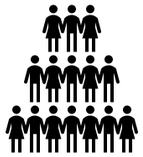


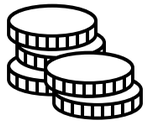
- **Modalities 2, 3 and 5 are associated with higher employment effects than Modalities 1 and 4 for any given level of investment.** This reflects the higher labour intensity of energy efficiency measures, compared to RES deployment. Relationship between investment and GDP is similar across all modalities.

- **Macro level results can mask regional/local differences**, especially in territories that rely on fossil-fuel intensive sectors.

- **Results broadly in line with other studies of Czech support programmes.**

Results are broadly in line with impacts of other Czech support programmes





	OPPIK OP Enterprise and Innovation for Competitiveness	**IROP** Integrated Regional OP	**NZU** New Green Savings (insulation)	**NZU** New Green Savings (heat sources)	**OPZP** OP Environment	**MF** Modernisation Fund
Total investment (mEUR)	2,237	1,158	1,528	890	1,810	12,168
Total grant (mEUR)	895	752	561	466	975	5,000
Employment	1,504	8,341	12,337	6,020	11,876	111,737
Employment/ mEUR investment	6.7	7.2	8.1	6.8	6.6	9.2
Employment/ mEUR grant	16.8	11.1	22.0	12.9	12.2	22.3

Employment factors from literature range from 3 to 19 jobs per mEUR investment.

Questions and answers

Jonathan Lonsdale, Matthias Wihlborg, Pravnick Heer – ICF

Presentation on the guidance on State Aid

Doc. JUDr. Michal PETR, Ph.D.
Associate Professor of EU Law,
Univerzita Palackého v Olomouci

State aid compliance is generally secured by the granting authority, but…

Modernisation Fund beneficiaries will need:

- a general knowledge of the State aid rules
- to cooperate with the granting authority to secure compliance – especially if awards exceed existing State aid limits

How applicants will be assessed by granting authorities and the European Commission

Six key questions to be answered:

1) Is there a State aid?
2) Can *de minimis* apply?
3) Does a block exemption apply?
4) Can an aid scheme for grants exceeding the GBER limits be created?
5) Is individual notification necessary?
6) What aspects of a notified aid does the Commission assess?

State aid is relevant for most of the Modalities that our project assessed

Modality	Does the support constitute State aid	Comments
1A, 1B, 2A, 2B	YES	
3A	Typically NO	Support to purely non-economic activities is not a State aid (e.g. public lighting, public schools etc.)
3B	Typically NO	Support to governmental buildings used for non-economic activities (e.g. seat of a ministry) is not a State aid
4	Typically YES	Depending on the definition of “energy communities” in the new Czech Energy Act, support to a community composed of final consumers not involved in economic activities should arguably not be a State aid
5	Typically YES	Support for non-economic activities (e.g. cars for use by public authority) are not considered State aid

Projects in individual Modalities may be subject to different types of environmental aid

Area of support	Relevant for SRSS project 'Modalities'	Relevant for proposed MF 'Programmes'
Environmental protection	1A, 5	1, 3, 5, 6
Energy efficiency	2A, 2B, 3A, 3B	3, 4, 7, 9
RES installations	1A, 1B, 2B, 4	1, 2, 3, 8
Energy infrastructure	1B, 2B, 4, 5	2, 4, 8, 5, 6
Energy efficient district heating	1A	1
Heating distribution networks	1A	1

The State aid guidance we have drafted will be transferable to Ministry of Environment's proposed set of MF Programmes

Significant proportion of projects under all Modalities may be block-exempted

If State aid rules apply (possible exemptions for Modalities 3A, 3B and 4)

General Block Exemption Regulation (GBER)

- (relatively) low thresholds concerning total amount of aid & aid intensity
- below thresholds in line with Internal market: no notification to Commission (only reporting)

Area of support	Limit for Aid (EUR mil.)	Aid intensity (%)
Environmental protection	15	40
Energy efficiency	10	30
RES installations	15	100
Energy infrastructure	50	100
Energy efficient district heating	15	45
Heating distribution networks	20	100

Above the GBER thresholds, the aid needs to be notified…

Guidelines on State aid for Environmental Protection & Energy 2014-2020 (EEAG)

- either as an aid scheme
- or individually for aids exceeding certain thresholds
- description of the questions to be considered

Area of support	Limit for Aid (EUR mil.)	Aid intensity (%)
Environmental protection	15	100
Energy efficiency	15	100
RES installations	15	100
Energy infrastructure	50	100
Energy efficient district heating	15	100
Heating distribution networks	15	100

Support may come from multiple sources

- **Funds managed at the EU level (Innovation Fund, LIFE Programme, etc.)**
  - do not constitute State aid
  - if their conditions are compatible
  - support from these funds may be “added“ up to their limits

- **Funds managed at the national level (inc. those with EU money, e.g. ESIF)**
  - additional support is another State aid
  - if their conditions are compatible
  - support may be “added“, but only to the State aid limits

Questions and answers

Jonathan Lonsdale, Matthias Wihlborg, Pravnick Heer – ICF &
Michal Petr, UPOL

Closing remarks

Ministry of Environment

Thank you.