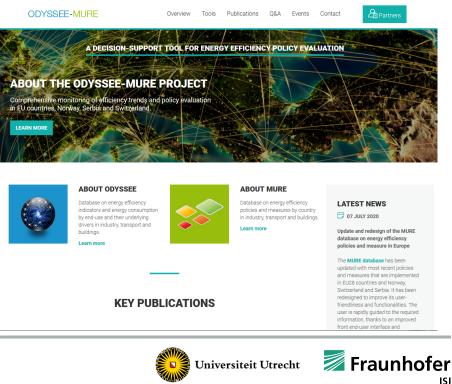
ENERGY EFFICIENCY POLICIES & MEASURES IN THE EU: THE ODYSSEE-MURE PROJECT

Presentation in the frame of the IAEA - Virtual Regional Training Course on Assessing Demand-side Contributions to Energy and Climate Strategies

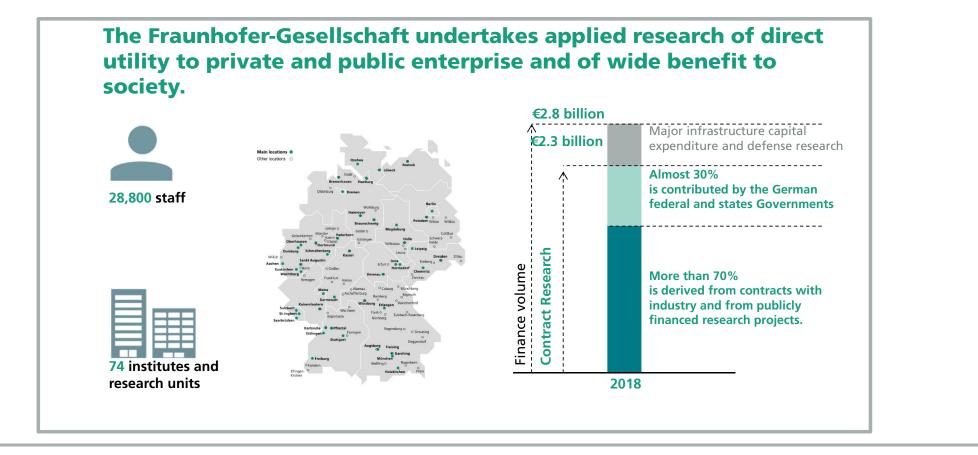
Wolfgang Eichhammer

Fraunhofer Institute for Systems and Innovation Research ISI, Germany and Utrecht University, Netherlands

11 November 2020



Fraunhofer is the Largest Organization for Applied Research in Europe





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The European ODYSSEE-MURE project on Energy Efficiency Indicators and Policies

- 31 EU countries represented by energy efficiency agencies
- Decentralised data collection legitimacy of the results
- Exchange on methodologies, interpretation through workshops gathering 60 experts
- Harmonised data collection allowing data going « beyond the energy balance », Rapid updating (- one year), quality check
- Dissemination process (free access to non-profit organisations, sectoral and country profiles, national reports)
- Communication tools Analysis facilities for end users , A single website :

http://www.odyssee-mure.eu/

The ODYSSEE-MURE network : more than 150 experts mainly from energy efficiency agencies, statisticiens and policy analysts

					GREECE	HUNGARY	IRELAND	ITALY	
AUSTRIA	economie	BULGARIA					Seal Strange	ENEL	
AUSTRIAN ENERGY AGENCY		SEDA	Energetski institut Hrvoje Pozar		Centre For Renewable Energy Sources And Saving	Hungarian Energy and Public Utility Regulatory Authority	Sustainable Energy Authority of Ireland	National Agency for New Technologies, Energy and the Environment	
Austrian Energy Agency	Ministry of Economy and Energy	Sustainable Energy Development Agency	Energy Institute Hrvoje Požar		LATVIA	LITHUANIA	LUXEMBOURG	MALTA	
CYPRUS	CZECH REPUBLIC	DENMARK	ESTONIA					THE	
Cyprus University of Technology		Danish Energy Agency	TAL				myenergy Luxembourg	ENERGY & WATER AGENCY	
Technology		• Agency	TECH		Institute of Physical Energetics	Lithuanian Energy Institute	MyEnergy	Energy & Water Agency	
Cyprus University of Technology	ENVIROS	Danish Energy Agency	Tallinn University of Technology	_	NORWAY	POLAND	POLAND	PORTUGAL	
FINLAND	FRANCE	FRANCE	GERMANY	1	Ito	Statistics Poland			
М	ADEME		-		ILC	Statistics Poland	KAPE	adene	
Motiva		Enerdata Intelligence + consulting	Fraunhofer		Institute for Energy Technology	Central Statistical Office of Poland	Polish National Energy Conservation Agency	Energy Agency ADENE	
Motiva	Agency for Ecological Transition	Enerdata	Fraunhofer ISI		ROMANIA	SERBIA	SLOVAKIA	SLOVENIA	
	(ADEME)								
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	C	Co-ordinato	rs		ROMANIA	SERBIA	SLOVAKIA	SLOVENIA	
					ANRE	INI	SIEA SLOVAK INNOVATION AND ENERGY AGENCY	Jolef Statan Institute, Ljubijana, Sioveria Energy Efficiency Centre	
					Regulatory Authority for Energy	Institute Nikola Tesla Belgrade	Slovak Innovation and Energy Agency	Jozef Stefan Institute	
					SPAIN	SWEDEN	SWEDEN	SWITZERLAND	
						eceee eceee eceee eceee	Swedish Energy Agency	UNIVERSITÉ DE GENÈVE	
					Institute for the Diversification And Saving of Energy (IDAE)	Borg and CO / ECEEE	Swedish Energy Agency	University of Geneva	
					SWITZERLAND	THE NETHERLANDS	THE NETHERLANDS	UNITED KINGDOM	
© Fraunhofer ISI					School of Management and Law	ECN) TNO (measing	NL Agency Advicery of Economic Affairs	RICARDO	aunhofer
					Zurich University of Applied Sciences	Energy research Centre	Ministry of Economic Affairs	Ricardo Energy & Environment	

Users of ODYSSEE-MURE...

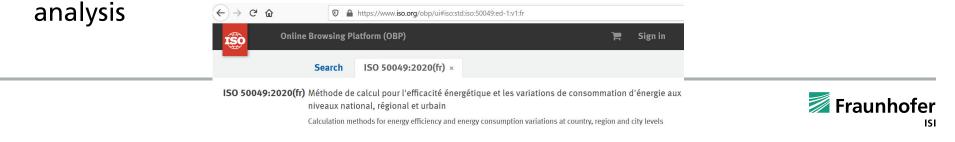
- Europe/EC : (DGEN, JRC, EEA, Eurostat, ECEEE, EnR club)
- Others :

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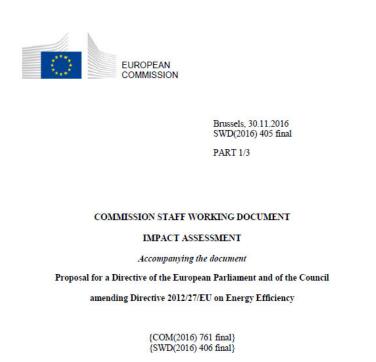
- IEA (EEUMD for G20),
- Latin America : UN-CEPAL (project BIEE& ROSE 25 countries), Mexico (AFD-CONUEE),
- Africa (MEDENER 7 Mediterranean countries, UN-Tunisia,
- Asia : India (BEE)

National level (e.g. German Ministry of Economic Affairs BMWi)

ISO 500049: Energy saving calculation at country, region and cities : Energy efficiency index, structural changes of energy intensities and decomposition



How ODYSSEE-MURE was used...



- Reporting for National Energy and Climate Plans NECPs (and previously National Energy Efficiency Action Plans NEEAPs)
- Impact assessments (e.g. Energy Efficiency Directive, Energy Performance Directive for Buildings)
- Monitoring of targets (e.g. with the ODYSSEE decomposition tool)
- Monitoring of measures with MURE (e.g. analysis of measures contributing to the 2030 energy efficiency targets, identification of gaps and measures who could close the gaps)
- European Energy Efficiency Scoreboard: comparison of national efforts



ODYSSEE: A Database on Energy Indicators and Analysis Tools



ODYSSEE PROJECT

ABOUT THE ODYSSEE DATABASE

The Odyssee indicators are accessible under different data tools: the full data base, the key indicators facility, as well as five specific data facilities that focus on specific issues and provide some interpretation: market diffusion, decomposition, benchmarking, energy saving and indicator scoreboard. The access to the data base is restricted, whereas all other data tools are in public access.







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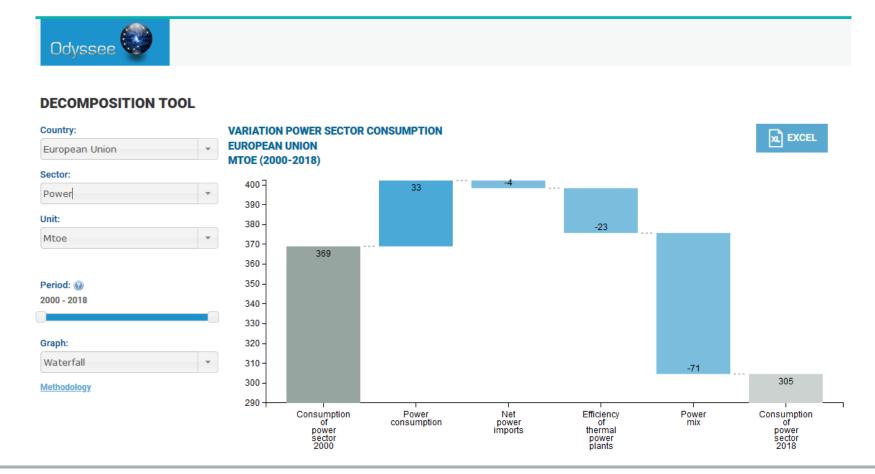
ODYSSEE: A Database on Energy Indicators and Analysis Tools

Enerdata	Ody	ssee															PDATE STATU	s data rev	vision	GLOSSARY	HOW TO US	ie opt	ions supp	ort ter	RM OF I
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																X Q Est						2010			
sidential - Indicators																A Q FI					V	2014			•
		Lunit co	ncumption n	er dwelling for	cnaco l	nontingu	ith clim	atic cor	ractions (cutoclo	rchc)														
nergy savings	Ì	La Unit co	nsumption p	er uwennig for	space	ieaung w	nui cim		rections (cutocio	genic)														
Technical		2	ISO cod	le Source Code	Note	Unit	2010 2	011 2	2012 201	3 2014	4 2015	2016	2017	2018											
Observed	٤	Austria	AT	ODYSSEE		toe/dw	1.286 1	.329 1	.338 1.30	50 1.38	7 1.358	1.339	1.315	1.289											
nergy savings rate		Belgiu	n BE	ODYSSEE		toe/dw	1.440 1	.462 1	.325 1.30	58 1.33	5 1.369	1.279	1.320	1.353											
nit consumption		Bulgar	a BG	Calculated		toe/dw	0.485 0	.471 0	0.501 0.50	0.49	0 0.510	0.518	0.512	0.522											
All dwellings		x Croatia	HR	EIHP		toe/dw	1.194 1	.221 1	.176 1.14	48 1.22	0 1.183	1.143	1.117	1.124											
All uses	_	Cyprus	CY	ODYSSEE		toe/dw	0.263 0	.303 0	0.293 0.30	01 0.33	3 0.304	0.324	0.321	0.361											
 Space heating, water 		Czechi	cz	ODYSSEE		toe/dw	1.221 1	.257 1	.242 1.23	20 1.21	7 1.176	1.147	1.137	1.212											
heating		Denma	rk DK	ODYSSEE		toe/dw	1.340 1	.455 1	.334 1.33	38 1.42	5 1.415	1.415	1.407	1.431											
 Space heating 		Estonia	EE	ODYSSEE		toe/dw	0.889 0	.945 0	0.880 0.90	06 0.84	1 0.784	0.850	0.821	0.838											
Per dwelling with		Finland	FI	ODYSSEE		toe/dw	1.352 1	.352 1	.344 1.3	24 1.31	7 1.365	1.289	1.244	1.230											
climatic corrections		France	FR	ODYSSEE		toe/dw	1.053 1	.052 1	.025 0.98	37 0.97	3 0.977	0.972	0.959	0.950											
Useful energy per		🔊 Germa	ny DE	ODYSSEE		toe/dw	1.090 1	.103 1	.088 1.12	1.04	9 1.004	1.065	1.056	1.054											
dwelling Per dwelling scaled 		Greece	GR	ODYSSEE		toe/dw	0.806 0	.763 0	0.725 0.53	73 0.61	2 0.683	0.656	0.632	0.664											
to european climate	_	Hunga	у НО	ODYSSEE		toe/dw	1.198 1	.272 1	.278 1.2	71 1.26	5 1.255	1.263	1.274	1.247											
Useful energy per		Ireland	IE	ODYSSEE		toe/dw	1.106 1	.079 0	0.963 0.96	58 0.93	4 0.928	0.951	0.942	0.993											
dwelling and degree		Italy	п	ODYSSEE		toe/dw	0.963 0	.934 0	0.957 0.96	56 0.94	0 0.964	0.976	0.931	0.944											
day		Latvia	LV	ODYSSEE		toe/dw	1.060 1	.167 1	.138 1.09	1.07	6 1.004	0.984	1.015	1.073											
• Per m2 with climatic		C Lithua	iia LT	LITSO		toe/dw	0.788 0	.851 0	0.793 0.79	0.75	8 0.772	0.753	0.751	0.778											
corrections		Luxem	bourg LU	STATEC		toe/dw	2.031 2	.324 2	2.012 1.8	33 2.13	0 2.104	2.033	2.083	2.007											
 Useful energy per 		Malta	MT	ODYSSEE		toe/dw	0.087 0	.073 0	0.060 0.09	97 0.09	2 0.068	0.091	0.083	0.094											
m2	\sim	Nether	lands NL	CBS		toe/dw	1.187 1	.096 1	.065 1.08	30 0.97	0.939	0.944	0.950	0.959											
		Poland	PL	SP		toe/dw	1.060 1	.122 1	.094 1.08	38 1.11	8 1.057	1.066	1.064	1.084											
abt click to coloct all it	-	Portug	al PT	ODYSSEE		toe/dw	0.147 0	.161 0	0.132 0.13	33 0.15	0 0.157	0.143	0.162	0.137											
ght click to select all items of vel.	d	Roman	ia RO	ODYSSEE		toe/dw	0.558 0	.541 0	0.546 0.53	75 0.59	5 0.600	0.580	0.582	0.630											
VC1.		Slovak	a sk	SOSR		toe/dw	0.871 0	837 0	764 0.8	12 0.83	8 0.765	0.757	0 777	0.820											*

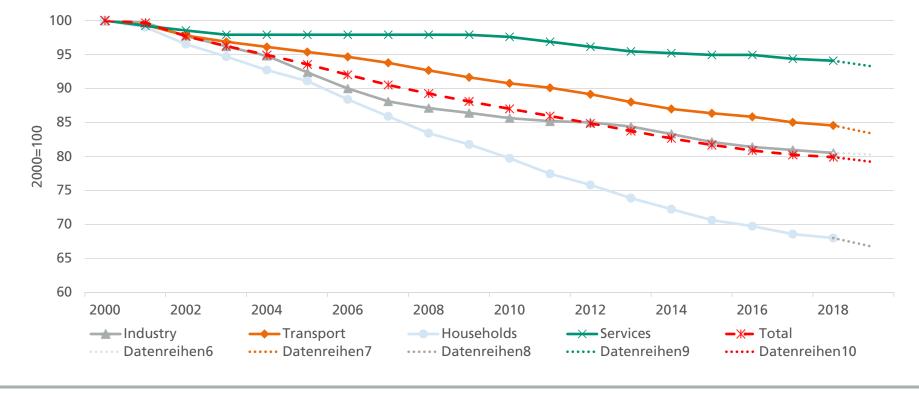


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ODYSSEE: A Database on Energy Indicators and <u>Analysis Tools</u> (Example: Decomposition Analysis for the Power Sector)



ODYSSEE: A Database on Energy Indicators and <u>Analysis Tools</u> (Example: ODEX – Dow Jones of Energy Efficiency)



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The ODEX calculates energy efficiency indicators at detailed level and agregates them into a singly indicator



MURE: A Database on Energy Efficiency Policies and Analysis Tools

atabase Radar graph Summary Table	more detail			149 measures four	nd		Export	^					
Search 🔁 :	Country ^	Sector 💠 Title											
	Austria	Household Residential bui	lding subsidy										
Enter text to search in measures	Austria	Austria Household National renovation campaign / renovation voucher											
Sector :	Austria	Austria Household Energy audits (advice) for households											
Household × •	Austria	Household Smart Metering	g and Informative <mark>E</mark>	illing									
Household	Belgium	Household Brussels - Ener	gy grant for housel	nolds									
ountries :	Belgium												
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Financial ×	Bulgaria	ł											
	Bulgaria	Title :			-	iterentwicklung, Verstetigung und Aufsto	-						
argeted end-use :	Bulgaria	ł	Gebäudesa	nierungsprogramms b	bis 2018 - inkl. Einführu	ng des Förderstandards Effizienzhaus Plu	us)						
Select	Bulgaria	ł											
	Bulgaria	Short description :	This measure includes financial subsidies for renovational works that make buildings more energy efficient. The progra										
Search	Croatia	ł	saving energy, especially in non-residential buildings as those make 30% of all buildings in Germany. The utilization of 300 mill for the grants-funding with subsequent coverage option for the interest subsidy is planned.										
	Croatia	1	for the gran	s-tunding with subset	quent coverage option t	or the interest subsidy is planned.							
Clear All	Croatia												
	Cyprus	Reference :	National Action Plan Energy Efficiency (2014) (Nationaler Aktionsplan Energieeffizienz) http://www.bmwi.de/BMWi/Redak										
Less options	Cyprus	interence .	/PDF/M-O/nationaler-aktionsplan-energieeffizienz-nape,property=pdf,bereich=bmwi2012,sprache=de,rwb=true.pdf										
easure Characterisation	Cyprus												
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	Czech Republic	L Status	Issuing date	Starting date	Ending date	Semi quantitative Impact 🛈	NECP ()	Article					

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View Detailed Measure Description

......

MURE: A Database on Energy Indicators and <u>Analysis Tools</u> (Example: The European Energy Efficiency Scoreboard)

EUROPEAN	ENERG	BY EFFICIENCY SCOREBOARD
View:		
Overview		The objective of the ODYSSEE-MURE scoreboard on energy efficiency indicators and policies is to score EU countries on different energy efficiency criteria:
Sector:		the energy efficiency level,
Overall	-	 the energy efficiency progress,
Score:		the energy efficiency policies,
Combined	Ŧ	a combination of all these criteria.
		The scoreboard can be viewed by selecting a criterion which ranks the country according to their score ("Overview"). The score by country for each criterion can be displayed by selecting "View by country".
METHODOLOGY		For each criterion each country is scored with a score between 0 and 1 on the basis of indicators and policies (see methodology).
SUMMARY		OVERALL: OVERALL ENERGY EFFICIENCY SCORE

The overall energy efficiency score is obtained as an average of the three scores obtained for "energy efficiency level", "energy efficiency progress" and "energy efficiency policies" (i.e. one third weighting).

Switzerland	0.86
Ireland	0.74
Romania	0.70
UK	0.63
Latvia	0.60
Slovakia	0.55



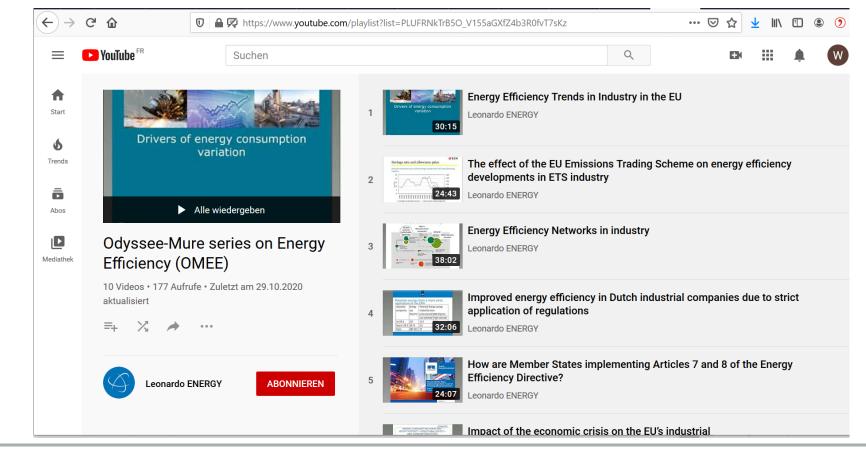
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MURE: A Database on Energy Indicators and <u>Analysis Tools</u> (Example: Assessment of Energy Efficiency Policies for 2030)

Option settings	Split cross-cutting savin	igs between sector	5	V Include	Article 7 measures	 Implementation factor 	Impact factor	Interaction factor	Semi-quantitative impact	Update Dashboard results
Approach by measure										
Settings										
Country: Spain										
Sector: All sectors	G									
National/EU/All: All										
Assessment of energy effciency policies										
					Estimated er	ergy savings by mea	sure for Spain fo	or All sectors		
Scenario data [PJ]	2015	2020	2025	2030						
PRIMES 2016 Ref	3,171	3,334	3,244	3,152	2.000.0					
EUCO3232.5	3,171	3,334	3,127	2,857	3,400.0					
		3.334 1.4		2.357			3,334			
GAP 2030				113	3,300.0		3,334			
Policy 2030			129	182.0	5,500.0				3,244	
Top 5 measures			<i>36</i>	124						
Other measures			33	59	3,200.0	3,171				
Estimated energy savings by measure for Spain for All sectors- TOTAL BY SECTOR						~				3,152
Sector			2025	2030	[fd] A3	3,171				
Total			129	181	ž 3,100.0				3,127	
Household			11	21	La La					
Industry			55	58	Ξ					
Services			34 🗖	54	3,000.0					
Transport			28	48						
Estimated energy savings by measure for Spain for All sectors					2,900.0					
	Sector		2025	2030						
	Total		129	182	2 000 0					2,857
	Industry		49.0	49.0	2,800.0	2015	2020		2025	2030
Tap 2 SER-ES1919 FNEE-Aid Programme for the Renewal of Municipal Street Lighting Installati Z 2 SEN SE0230 PUS FELL P			27.1	40.7		avar	2020		2423	2000
Top 3 GEN-ES0379 DUS EELL Programme-Aids Programme to singular projects for local entitie Top 4 GEN-ES0374 Energy Efficiency Obligation Scheme	General cross-cu General cross-cu		8.0 8.3	13.0 12.5		GAP 2030	Other measures	Top 1	Top 2	Top 3
	General cross-cu Household	itting	8.3 3.7	8.3			Top 5		RefEUCO3232.5	· ·
						100 4	c qui		Nei	
θ	Transport		2.6	5.9						



Dissemination Channels: example YouTube (and: country/sector profiles, policy briefs, scientific articles, seminars, webinars, trainings...)



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https://www.youtube.com/playlist?list=PLUFRNkTrB5O_V155aGXfZ4b3R0fvT7sKz



How the ODYSSEE-MURE approach could support your countries...

- Inspire systematic and harmonized collection of data and information on energy efficiency trends and policies
- Inform NECPs, Nationally Determined Contributions NDCs or similar national strategies
- Help to establish monitoring tools for target achievement
- Help to understand why targets are achieved/not achieved
- Support impact assessments and conception of new policies
- Serve for comparisons in terms of indicators and policies (e.g. MURE policy mapper and successful policy facility)
- Help to standardize the determination of energy savings



Thank you for the attention

Wolfgang EICHHAMMER

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